The Arctic in World Environmental History

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ABSTRACT

This Article situates the Arctic in global environmental history across the long duration of time. For millions of years, the Arctic has been the world’s most important “barometer of global change and amplifier of global warming.” For twenty thousand years, the Arctic has been the homeland of modern human settlement, and it has played a central role in the interplay between global climate change and human migration throughout Eurasia and the Americas. Since the late fifteenth century, Arctic aboriginal peoples, lands, and seas have been thoroughly integrated into the international history of European trade, capitalism, and colonization; the territorial expansion of modern nation states; and the transnational strategic history since the outset of the Cold War, including the continued basing of nuclear-armed missiles, bombers, and submarines throughout the Arctic region.

Appreciation of this international history can provide lessons for contemporary policymakers to help mitigate grave risks to human life and biodiversity in the Arctic and sub-Arctic. For example, this Article calls for negotiations between the U.S., NATO, and the Russian Federation on the basis of Russian President Mikhail Gorbachev’s 1987 proposal to transform the Arctic into “a zone of peace” and, specifically, to establish “a nuclear free-zone in northern Europe.”

In conclusion, this Article identifies how deeply embedded global systems of political economy and international relations continue to shape recent developments in the Arctic at this time of exacerbated climate change and resulting ecological crisis. Appreciation of the Arctic’s environmental history can help decision-makers to more knowledgeably and effectively support

indigenous self-determination, resource conservation, and environmental stewardship throughout the circumpolar bioregion.

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One of the oldest dreams of mankind is to find a dignity that might include all living things.


I. INTRODUCTION

Now we know that the ice caps are melting, effectively changing the polar environment forever. Asked to close our eyes and imagine the Arctic as it appeared in years past, polar bears may come to our minds. Yet now we imagine a single bear wobbling upon a patch of broken-off sea-ice, a searing image cycled through the internet into the world’s consciousness as a metaphor for the Arctic’s fate in our new and rapidly warming millennium. We worry about the extinction of polar species and the fate of vulnerable coastal populations (in the Ganges delta of Bangladesh, for example), whose lands and lives would be destroyed if Greenland ice sheets melt into the Arctic Sea. Indeed we are right to worry and take whatever collective action we can as families, societies, organizations, and governments. We know about huge megaprojects of oil, gas, and mineral extraction and production throughout the far North. We are simultaneously aware that huge economic opportunities, even for indigenous peoples, come fraught with grave risks. But we may not have the background to place current life-changing developments in historical context. We may not understand that our recent problems and challenges have deep origins and structural roots. Without this understanding, we are hobbled in our efforts to manage them effectively.

A. Nunavut and Ultima Thule

The Arctic is a place on the earth at the globe’s circumpolar north. Yet the Arctic also represents an idea, a place in the human mind. For centuries, the North Pole and its surrounding ice, land, and sea has evoked a kaleidoscope of images and stories: heroic expeditions either defying or embracing an icy death; Eskimo

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generosity extending, so it is said, to the warm comfort of a gracious host’s wife on a dark, below-zero night; or today’s terrified polar bear, cast adrift into the sea.

Of all of these polar tropes, two images reside at the heart of Arctic history. Each of these conceptions evokes the passions and certainties of bedrock beliefs held, respectively, by indigenous and foreign actors. The first image envisions the Arctic as nunavut: the Inuit word for “our land.”

In the second image, the Arctic is Ultima Thule: the awesome, icebound, resource-abundant northernmost boundary of classical and early modern European imagination and ambition, and the last frontier of civilization’s global, national, and commercial development. I would argue that the fateful tension between these competing visions—played out in struggles to control resources in northern lands and seas since the first European–aboriginal contact—is the primary engine driving the long, dramatic narrative arc of the region’s modern history, chapter by chapter, across the circumpolar north.

The image of nunavut evokes deep feelings of identification with the particular homeland and natural ecosystem to which each northern aboriginal people belongs and on which each depends for its sustenance and survival. Canadians know this term well because it was taken by Inuit of northwest Canada as the name of the Nunavut Territory. Established in 1999 as Canada’s first official geographic and political unit with a primarily indigenous population, Nunavut is administered as a Canadian territory under aboriginal self-government. In this Article, I use the term nunavut with a small “n” to connote traditional conceptions of aboriginal self-determination more generally across hundreds of indigenous nations throughout the circumpolar north.

In contrast, Ultima Thule evokes ancient and modern European images of “a distant northern place, geographically undefined, and

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6. In this analysis, I draw on Robert Bone’s discussion of competing Canadian perceptions of Canada’s North: “[f]or most, the North represents the colder lands of North America where winters are extremely long and dark, where permafrost abounds, and where few people live. Canadians also perceive of this cold and diverse environment in two ways: either as a frontier or as a homeland.” Robert M. Bone, The Geography of the Canadian North: Issues and Challenges 1 (2d ed. 2003).
shrouded in esoteric mystery.”

The term “Thule” is most often traced to the Greek explorer Pytheas, who imagined and tried to find a fabled archipelago north of Scandinavia. Early and medieval European poets extolled the stark, compelling beauty of *Ultima Thule*—the most hyperborean realm of all: “[t]he end of the world; the last extremity.”

It was a place of overwhelming mystery and yet, at the same time, limitless treasure and utility. In *Georgics*, Virgil prophesizes its future mastery: *tibi serviat Ultima Thule* (the farthest Thule shall serve you). Throughout the subsequent centuries, in the spirit of Virgil, European scientists, adventurers, mercantilists, and mercenaries dreamed of navigating polar seas, exploring Northern geographies, reaching the North Pole itself, and conquering Arctic territories for their king or state. *Ultima Thule* never lost its power to evoke humanity’s ultimate northernmost frontier; to inspire enormously difficult, challenging, and costly endeavors to reach and conquer it; and to propel among the most heroic feats of exploration, endurance, and engineering in global human history.

Implicitly or explicitly, each image also embodies fiercely-held conceptions of justice, law, property, and governance. In Arctic lands imagined as *nunavut*, aboriginal inhabitants have always held legal jurisdiction, land rights and title, and political control—each naturally derived from principles of national sovereignty and territoriality based on indigenous self-determination within understood if not demarcated boundaries. But in Arctic lands imagined as *Ultima Thule*, the rights of foreign occupants derived

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9. *See*, e.g., 1 *The Geography of Strabo ch. 5, § 8* (Horace Leonard Jones trans., 1917) (“Now Pytheas of Massilia tells us that Thule, the most northerly of the Britanic Islands, is farthest north, and that there the circle of the summer tropic is the same as the arctic circle.”).

10. E. COBHAM BREWER, *Dictionary of Phrase & Fable* (1898). Brewer suggests its possible etymology in the Gothic *tiule* (the “most remote land”) or the Greek *telos* (“the end”). *Id.*

from legitimate claims of national sovereignty based on the proper
application of the customary international law principle of *terra
nullius* (discovery and occupation of land unclaimed by any other
nation-state sovereign).

During the five or six hundred year period following the initial
contact between Europeans and indigenous northern peoples, these
opposing Arctic images and claims have been irreconcilable. In no
case did indigenous sovereignty claims prevail—at least not until the
adoption of the Nunavut Land Claims Agreement Act and the
corresponding Nunavut Act by the Canadian Parliament in 1993, and
related current developments discussed in this Article’s conclusion.12

### B. Political Ecology and the Longue Durée

This Article honors Ernest Gruening, Governor of the Alaskan
Territory (1939–1953), who delivered a forward-thinking talk at the
September 1951 Alaska Science Convention subsequently published
as “The Political Ecology of Alaska” in the December 1951 *Scientific
Review*.13 “An explanation of my title is scarcely necessary,” he
states.14 “I propose to discuss the relation of the human organisms
that have constituted and still constitute Alaska’s population to their
institutions, both public and private, and to their physical
surroundings.”15 For Gruening, political ecology is “political history,
economic history, social history, all closely interwoven.”16 Examining
this history helps us remember that “Eskimos and Indians were here
first and presumably they will always be here.”17 In this context,
respect for the Arctic’s indigenous peoples is a fundamental value, if
not the highest priority, of regional governance.18 Long before the
emergence of a global “environmental movement,” and in contrast to
so many regional leaders for whom hydrocarbon extraction has
trumped environmental protection and indigenous social welfare,19

376–86 (1951).
14. *Id.* at 376.
15. *Id.*
16. *Id.* at 377.
17. *Id.* at 384.
18. *Id.*
19. Walter Hickel, Governor of Alaska and later U.S. Secretary of the Interior,
is most famous for the “Hickel Highway” he commissioned in 1968, a bulldozed road to
enable oil from Prudhoe Bay to be hauled in tanker trucks all the way south to
Fairbanks. The Alaska Pipeline: Governor Walter J. Hickel and the Hickel Highway,
http://www.pbs.org/wgbh/amex/pipeline/peopleevents/p_hickel.html (last visited Oct. 4,
2009). Governor Hinkel describes the origin of the highway in a flash of insight that
came to him when he flew over Anaktuvuk Pass on May 2, 1967: “[a]s I looked over
the long gradual ramp of the North Slope, where the continental divide slowly merges
with the Arctic Ocean, a vision hit me, or call it intuition: I saw an ocean of oil. There’s 40
Governor Gruening sought to understand the relationship between Arctic history, indigenous culture, and contemporary political events. Upon that foundation, he identified and pursued a vision of sustainable Arctic governance that remains compelling today.

“Political ecology” scholarship has developed significantly since Governor Gruening’s 1951 talk. This interdisciplinary field of inquiry investigates the relationship between human groups (including nation states, indigenous communities, and external economic actors) and identified local or regional physical environments over time.20 Today, political ecology scholars include cultural and physical anthropologists, human geographers, environmental scientists and policy analysts, and conservation biologists.21 Independently or in multi-disciplinary teams, they examine “cultural, demographic, economic, and political dimensions of resource use and ecological change, focusing on these issues and their linkages at and across multiple special and temporal scales,” with attention to historical forces shaping present conditions and relationships.22

Without understanding the environmental history of a region under investigation—in particular, interactions between sovereignty, territoriality, and patterns of resource extraction and use over time—assessments of current developments would be insufficiently thick and prescriptions for regulatory process or policy actions would risk failure. An enormous and rich library of environmental, political, and

billion barrels of oil down there,’ I said.” Id. The Hinkel Highway has since been replaced by the Dalton Highway, commonly referred to as the “Haul Road.” The Dalton Highway: A Multi-Media History of Alaska’s Arctic Road, http://jukebox.uaf.edu/haul_road/index.htm (last visited Oct. 4, 2009).


22. Neumann, supra note 20, at 86–87 (focusing on a common objective of scholars in the field: to understand “the political, economic and social structures and processes which underlie the human practices leading to degradation” of land, natural resources, and ecosystems). Neumann identifies a shared research framework based on three elements: “(1) a focus on the land users and the social relations in which they are entwined; (2) tracing the linkages of these local relations to wider geographical and social settings; and (3) historical analysis to understand the contemporary situation.” Id. at 87.
legal scholarship about the Arctic has been created in recent years, especially as concern about global warming has become heightened.\(^{23}\) However, there is a surprisingly small literature addressing the transnational history of the Arctic as a region.\(^{24}\)

Scholars have largely studied the Arctic in national or local context—anthropologists and ethnographers because of the professional orientation toward smaller geographical and community units, and political scientists and historians because of longstanding national categories of expertise or because “area studies” programs only very rarely include the Arctic as such a subject “area.”\(^{25}\) But there may be other explanations as well. Fernand Braudel, the great historian of European capitalism and civilization, cautioned that “[t]here are always some areas world history does not reach, zones of silence and undisturbed ignorance.”\(^{26}\) Perhaps historians have perceived the Arctic—with its small native populations, geographical distance, and brutal climate—as such an isolated zone.\(^{27}\)

While embracing Braudel’s attention to “temporalities of long and very long duration” (what Braudel calls the “\textit{longue durée}”),
Cameroonian political thinker Achille Mbembe rejects the notion that Africa should be considered such a zone, removed from both international history and global political economy, at the “margins” or “edge” of the world. American anthropologist Eric Wolf went even further, rejecting the idea that any such “zones of silence and undisturbed ignorance” ever existed. Specifically, Wolf identified within modern historiography (and throughout the social sciences) an implicit, profoundly erroneous conception of aboriginal nations and communities as “people without history.”

This discussion of the Arctic in world history is inspired by Mbembe and Wolf—just as its extremely long time frame is inspired by Braudel. In Braudel’s work, the investigation of social and environmental transformations over many centuries does not preclude attention to the short time span of events and the details of individual experience, however idiosyncratic or seemingly inconsequential. On the contrary, Braudel emphasized that “what matters is the fact that our discussion will move between these two poles of time, the instant and the longue durée.”

In this spirit, this Article argues that the Arctic has never been a pristine oasis or an isolated, undisturbed zone at the top of the world. On the contrary, even the smallest northern aboriginal nation and the most remote polar micro-environment have been impacted by foreign intervention; business and political decisions made in places like Amsterdam, London, Moscow, and Washington; and the purchase of Arctic-originated commodities in places like Beijing, Copenhagen, St. Petersburg, Stockholm, and New York. No community or environment in the Arctic remained untouched and unchanged by the larger historical forces, ideologies, and economic engines that have shaped the international system as it evolved since the beginning of the European nation-state system. In sum, Arctic peoples and

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29. See Eric R. Wolf, Europe and the People Without History 3 (1982) ("[T]he world of humankind constitutes a manifold, a totality of interconnected processes, and inquires that disassemble this totality into bits and fail to reassemble it falsify reality.").
30. Id. at 18. Wolf exposes this misconception even in anthropology, the discipline which has studied indigenous cultures and societies more than any other, and to which historians, in leaving the histories of indigenous peoples largely unexamined, have deferred. Id. at 18–19. For Wolf, the most important connections and interrelationships between local communities and Europeans, initiated by mercantile and colonial expansion, has been obscured in each of two prevalent strands of modern social and cultural anthropological studies: on the one hand, ethnographic investigation of “local microcosms of meaning, conceived as autonomous systems”; and, on the other hand, “the statistical cross-cultural comparisons of coded features drawn from large samples of ethnographically known cases.” Id. at 16–18.
32. Id.
ecosystems have always been highly integrated into this global history. Indeed, there are not two separate histories here at all, I would argue; rather, they are one and the same. Arctic regional history is a theatre in which international history has played out from its beginning.

II. DEEP TIME ECHOES

Consider the earth’s history as the old measure of the English yard, the distance from the King’s nose to the tip of his outstretched hand. One stroke of a nail file on his middle finger erases human history.

John McPhee, Basin and Range.33

The overwhelming consensus of climate scientists today is that we have already commenced a dramatic period of global climate change in which higher temperatures are likely to be sustained beyond levels that human beings as a species have ever experience before.34 The cyclical nature of planetary climate history suggests that a cooling period will eventually follow after some period of millennia.35 However, we are in terra incognita, because we do not know whether human intervention (particularly through the vastly increased carbon emissions from the burning of fossil fuels) has so altered the system’s highly sensitive climate triggering mechanisms that it has thrown them radically off course. All we can do at this point (other than tax emissions, reach binding international agreements to reduce them globally, improve renewable energy technologies and greatly expand their use, consume less and conserve more) is to make sure that the best scientists are well-funded to go back to the laboratory for more data collection and analysis. For this urgent investigation, the richest climate change laboratory in the world—the best-stocked, the most fertile and productive, and the ideal place to study the effects of global warming—is the Arctic itself.36


A. 70 Million Years Ago

A 1983 Canadian scientific expedition to the Arctic’s Alpha Ridge seabed recovered an astonishing treasure trove: “cores containing shallow buried Cretaceous diatom ooze,” including sediments dating from 70 million years ago (70 mya). In 2009, a team of U.K. paleaeoclimate scientists obtained access to samples of this material that had been stored at a Nova Scotian oceanographic institute. Identifying “superbly preserved diatoms” (tiny plant-like organisms) for micropalaeontological study, their results suggest that the greenhouse conditions of the Late Cretaceous period (i.e., an ice-free summer, intermittent sea ice in the winter, and seasonal phytoplankton growth) resemble current transformations in the Arctic Sea, and that these changes, in turn, “could affect the fisheries and the entire ecosystem.”

B. 55 Million Years Ago

The Palaeocene-Eocene thermal maximum (PETM) was “a period of intense global warming about 55 million years ago . . . attributed to a rapid rise of greenhouse gas levels.” In 2007, a team of British geologists and biochemists published evidence that the PETM rise in Arctic temperatures generated an increase in the production and release of more potent greenhouse gases in the form of carbon-saturated methane. Reviewing the PETM data, a team of German marine scientists concluded that current (2009) conditions of thawing circumpolar permafrost “could release large quantities of greenhouse gases into the atmosphere, thus further increasing global warming and transforming the Arctic tundra ecosystems from a carbon sink to a carbon source.” In Western Siberia, a vast frozen peat bog is melting so fast that “[a]n area the size of Germany and France combined could be poised to release seventy billion tons of methane,” a prospect botanist Sergei Kirpotin describes as “an

37. Davies et al., supra note 1, at 254.
38. Id.
39. Id.
42. Id.
ecological landslide that is probably irreversible.” According to the 2007 scientific report of the International Panel on Climate Change (IPCC), “on a per molecule basis, methane has more than 20 times the warming influence” of carbon dioxide.

Meanwhile, also in 2009, a team of Colorado-based paleontologists has analyzed mammalian tooth enamel specimens from fossil assemblages retrieved from Ellesmere Island, Nunavut, and dating back to the “deep time laboratory” of the Eocene period (between 50 and 55 mya). The team’s results confirmed that the Eocene Arctic was approximately 40°C warmer than it is today. Filled with deltas, swamps, and forests, it was year-round home to “a diverse mammalian fauna most similar to coeval lower-latitude faunas in western North America,” including alligators, tortoises, and lizards. This evidence suggests that that current global warming will lead lower-latitude plants and animals to migrate north to polar environs (i.e., alligators, tortoises, and lizards may one day return home, after all).

C. From Pleistocene to Holocene (our own era)

Beginning with the expansion and thickening of polar ice sheets approximately 2 million years ago, the Pleistocene era (approximately 2 mya to 12 thousand years ago, or 12 kya) and our own Holocene era (12 kya to present day) together comprise the earth’s last great


In a complete Arctic thaw, [permafrost at the bottom of Arctic] lakes could discharge a whopping 50 billion tons of methane: 10 times the amount already helping to heat the planet.

Whether a total or more moderate release is in store is still anyone’s guess. But pound for pound, methane in the atmosphere traps 25 times more of the sun’s heat than CO2 does. Consequently, even a modest thaw of the perennially frozen soil that lies under these ephemeral lakes and caps the dry land around them could trigger a vicious cycle: warming releases methane and creates lakes, which thaw permafrost and liberate more gas, which intensifies warming, which creates more lakes, and so on.

Id.

47. J. Eberle et al., Lower-Latitude Mammals as Year-Round Residents in Eocene Arctic Forests, 37 GEOLOGY 499, 499 (2009).
48. Id.
49. Id. at 502.
The glacial epoch, which geologists call the “Quaternary Ice Age.”

Human civilization still inhabits the Quaternary epoch, although if global warming trends continue unabated, this period might be ending on an accelerated schedule. Climate and sea-level fluctuations in Arctic regions since the outset of the Pleistocene era have involved three broad phases: long periods of slowly emerging cycles of glaciation (in which temperatures very slowly became cooler, “taking as much as 90,000 years to change from temperate to extreme cold conditions”); shorter periods of equilibrium and temperate climate (lasting up to 20,000 years); and precisely three periods of extremely rapid global warming involving the abrupt melting and eventual collapse of Arctic marine ice sheets. Geologists have called these warming moments “terminations,” referring to the end of an equilibrium period. The first glacial termination took place approximately 125 kya, the second approximately 14 to 12 kya, and the third during our own miniscule flash of geological time.

III. MOTHERLAND AND BRIDGE

Our story begins approximately 30 kya, in the waning millennia of the late Pleistocene era. I say “our story” because it is the narrative of the migration and settlement of modern humans or *Homo sapiens*—our own species (replacing the archaic Neanderthal populations that had colonized warmer latitudes 200 kya).

In this dramatic story, the Arctic (or, more specifically, Siberia’s far northeast) plays two starring, mutually dependent roles: motherland and bridge. Applying revolutionary methodological advances in genetics, skeletal morphology, population geography, biostatistics, linguistics, archeology, and other fields related to ancient historical

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51. WILLIAM J. MILLER, AN INTRODUCTION TO HISTORICAL GEOLOGY: WITH SPECIAL REFERENCES TO NORTH AMERICA 328 (2d ed. 1922).


54. Id.

55. Id. at 71.

archives (e.g., data samples of excavated skeletons, allele patterns of current indigenous groups, human genome sequences), scientific detectives are beginning to clarify an empirical understanding of the Arctic’s role in human migration that had only been imagined in the past.\textsuperscript{57}

This history was imagined by explorers and missionaries as what is referred to as the “early modern period” of European expansion.\textsuperscript{58}

José de Acosta, the Spanish Jesuit naturalist, spent much of his life as a missionary in Peru.\textsuperscript{59} Following his return to Spain, his \textit{Historia natural y moral de las Indias} was published in 1590.\textsuperscript{60} Reflecting on his experience working with indigenous peoples, he proposed an unusual explanation for the mystery of aboriginal settlement.\textsuperscript{61}

Where did the South American “Indians” come from? How did they get there? They came from Asia, de Acosta answered—and they walked.\textsuperscript{62} For 140 years, de Acosta’s theory was largely ignored until the Danish explorer Vitus Jonassen Bering, while sailing along the Kamchatka coast as an officer in the Russian navy, inadvertently discovered Alaska, the Aleutian Islands, and the strait that bears his name.\textsuperscript{63} Now, at the outset of the twenty-first century, informed by revolutionary advances in scientific methodologies for studying ancient fossils and breakthroughs in quantitative linguistic analysis of existing indigenous populations, we can test de Acosta’s wild theory with richer and more diverse evidence than ever before.\textsuperscript{64}

\textbf{A. Original Siberian Settlers}

Northeastern Siberia had been frozen and unfrozen during periods of glacial advance and retreat over thousands of millennia

\textsuperscript{57} See, e.g., Jody Hey, \textit{On the Number of New World Founders: A Population Genetic Portrait of the Peopling of the Americas}, 3 PLoS Biology 965, 965 (2005) (discussing the application of a new method to questions on the founding and history of Amerind-speaking Native American populations); Tamm et al., \textit{Beringian Standstill and Spread of Native American Founders}, 5 PLoS Biology 1, 1 (2007) (using genetic studies in a study of those persons who migrated to the Americas from Siberia). One particularly exciting feature of current interdisciplinary scholarship in human migration is fieldwork conducted by transnational research teams including archeologists, forensic pathologists, human geographers, biological anthropologists, geneticists, linguists and biostatisticians from universities, medical schools and research institutes throughout the world.


\textsuperscript{59} Walter D. Mignolo, \textit{Introduction} to NATURAL AND MORAL HISTORY OF THE INDIES, supra note 58, at xvi–xviii.

\textsuperscript{60} \textit{Id.} at xvii.

\textsuperscript{61} \textit{Id.} at xx, xxiii.

\textsuperscript{62} \textit{ACOSTA, supra} note 58, at 63.

\textsuperscript{63} David Colterjohn, \textit{In the Beginning}, VANCOUVER SUN, Dec. 11, 2004, at F.19.

\textsuperscript{64} Hey, \textit{supra} note 57, at 965.
between the Eocene and the late Pleistocene era (roughly the period from 2 million years ago to 10,000 years ago). Until very recently, scientists believed that Siberia was not inhabited by human beings until the area around the Lake Baikal region was settled by Upper Paleolithic hunters and gatherers around 15–18 kya when, it was believed, the region first became warm enough for human habitation. These people produced and used sophisticated stone blades, tools, and cultural artifacts, and they hunted reindeer stocks in various directions as they migrated southeast from the Baikal region.

Then, in 1993, Mikhail Dashtzeren, a Russian geologist searching for Ice Age animal bones by the Yana River in the desolate Siberian tundra, discovered an unusually well-preserved object: the horn of a woolly rhinoceros. This was not simply an animal fragment. Seeking geological and biological specimens, Dashtzeren had unwittingly discovered an artifact of human culture: the Yana horn had been carefully beveled into the foreshaft of a spear. Eventually, Dashtzeren brought the foreshaft he had stumbled upon to archaeologists who understood the stunning value of the discovery. From 2001 to 2004, researchers found in the Yana site a treasure of bones, tools, and carved stones confirming that modern humans had originally colonized the Arctic about 30 kya—twice as long ago (previously scientists had dated the first Siberian migration to 15 kya) and during a much colder period than had been previously believed.

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66. See V. V. Pitulko et al., The Yana RHS Site: Humans in the Arctic Before the Last Glacial Maximum, 303 SCIENCE 52, 52 (2004) (noting that researchers believed the environment of East Siberia before 18,000 years ago to be too harsh for human occupation).


68. Pitulko, supra note 66, at 52.

69. Id.

70. Id.

71. Id.; Richard Stone, A Surprising Survival Story in the Siberian Arctic, 303 SCIENCE 33, 33 (2004); Tamm et al., supra note 57, at 1.
B. Across to Berengia and Beyond

Radiometric and accelerator mass spectrometry studies of the Yana material, in combination with mitochondrial DNA (mtDNA) haplogroup analysis of Native American skeletal fragments, provides confirming evidence that ecological barriers forced the original settlers to remain isolated in the Siberian region for perhaps another 15 thousand years. After that long hiatus period, Siberian settlers migrated throughout northeast Asia and northeasterly to the other side of Berengia: the vast, steppe-tundra landmass connecting Siberia to North America that had formed during the Early Wisconsin Glacial (70 to 50 kya) but had previously been inhospitable to human migration.\(^{72}\)

The precise dates, routes, waves, and population numbers of modern human settlement in northeast Siberia, and the migrations from Siberia throughout north Asia and the Americas remain subject to intense scholarly debate. Astonishing correspondences and bitter conflicts in scientific research have, in turn, unexpectedly heightened this debate. Scientists from a variety of different fields still debate competing theories about the length of time that the original settlers stayed in the North American side of Berengia before migrating south, the size of the original migrant population(s), whether or not Native American and Western Berengian populations derived from a single founding group, and whether South American colonization proceeded in a single stage or in distinct, multiple stages.\(^{73}\)

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\(^{72}\) See Tamm et al., supra note 57, at 2 (arguing that a swift migration followed the long pause at Beringia). Archeologists have found artifacts similar to the rhino spear and chiseled stone tools and figurines of the Yana site in archeological excavation sites in Inner and Outer Mongolia and Manchuria, the Korean peninsula, and in Jomon sites in Hokkaido, Sakhalin and the Kuriles; and they have found such tools in Kamchatka, the Aleutian Islands and Northwest Alaska. E.g., Toshishiko Kikuchi, Ainu Ties with Ancient Cultures of Northeast Asia, in Ainu: Spirit of a Northern People 47, 48 (William W. Fitzhugh & Chisato O. Dubreuil eds., 1999).

\(^{73}\) See, e.g., Stephanie Bourgeois et al., X-Chromosome Lineages and the Settlement of the Americas, Am. J. PHYSICAL ANTHROPOLOGY, May 7, 2009, http://www3.interscience.wiley.com/journal/122377297/abstract (noting that while there is consensus that the source of Native American migrations lies somewhere in North Eastern Asia, there is no consensus on the number, timing, or routes of migration); Nelson J.R. Fagundes et al., Mitochondrial Population Genomics Supports a Single Pre-Clovis Origin with a Coastal Route for the Peopling of the Americas, 82 Am. J. HUMAN GENETICS 583, 583–90 (2008) (noting that the timing and means of migration to the New World is “hotly debated”); Goebel et al., supra note 56, at 1497–1502 (noting that the “peopling of America debate is far from resolved”); Juan Moscoso et al., HLA Genes of Aleutian Islanders Living Between Alaska (USA) and Kamchatka (Russia) Suggest a Possible Southern Siberian Origin, 45 MOLECULAR IMMUNOLOGY 1018, 1018–26 (2008) (noting that recent genetic studies have challenged Greenberg’s three-wave model); Walter A. Neves & Mark Hubbe, Cranial Morphology of Early Americans from Lagoa Santa, Brazil: Implications for the Settlement of the New World, 102 PNAS 18309, 18309–14 (2005) (hypothesizing that New World colonies derived from two distinct biological populations); Dennis H. O’Rourke, Human Migrations: The
Notwithstanding these differences in methodology and result, consensus has emerged among contemporary scientists on the following world historic patterns and events: (1) Modern humans settled northeastern Siberia about 30 kya; (2) for a roughly 4,000-year window beginning approximately 16 kya, the Bering Strait land bridge was sufficiently accessible, dry, and stable to permit migration of Siberian people across to Western Berengia/North America (as they also migrated throughout North East Asia); (3) this window effectively closed around 12 kya when sea level rise from the second glacial termination identified above flooded and eventually submerged the bridge; and (4) these foundational migrations (whether from a single group or multiple waves) led to the peopling of the Aleutian Islands and across Western Beringia (with a possible North American standstill up to 15 thousand years) and the Americas.74

Thus, more than 400 years after the publication of José de Acosta’s *Historia natural*, twenty-first century scientists prove that he was a visionary. Now we know that all indigenous peoples from Russia to the Canadian far north and throughout the Americas (i.e., all of the nations, tribes and communities that originally settled the northwest coast of Alaska on the Chukchi Sea, across to Nunavut and further east, and south from Florida and Mexico all the way to Tierra

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74. For evidence suggesting human occupation in Northeast Siberia as early as 30 kya, see Pitulko et al., *supra* note 66, at 52, 54; Stone, *supra* note 57, at 1. For evidence of the window’s closing due to sea level rise, see MELTZER, *First Peoples in a New World: Colonizing Ice Age America* 34 (2009) (noting that although likely not hospitable, the Bering Strait was certainly navigable for millennia).
del Fuego) trace their ancestry to the Siberian Arctic, our American motherland.\textsuperscript{75}

IV. ABO IRIG IAL PEOPLES AND NATIONS

It is important neither to romanticize the communities and lives of Arctic indigenous peoples before or after contact with Europeans nor to idealize their cultural practices and values. Human life in the farthest north has always been dominated by the brutal struggle to survive in desolate, inhospitable climes.\textsuperscript{76} In the initial millennia of life in Western Berengia, people were vulnerable to attack by powerful, hungry mammals (including those enormous wooly mammoths and vicious saber-toothed cats we remember from the Ice Age dioramas and National Geographic pictures, and many other predatory and man-eating creatures we can only imagine).\textsuperscript{77} In turn, human beings, along with freezing temperatures, likely contributed to the mass extinction of prehistoric mammalian species.\textsuperscript{78}

The killing and butchering of whales, walruses, seals, polar bears, and wild caribou—inseparable from Arctic indigenous survival—has always been a gory business, and so it remains. Even today, naturalists are disturbed by the harsh treatment, even beating, of underperforming sled dogs.\textsuperscript{79} However, animals were not


\textsuperscript{76} Kersey, supra note 7, at 432 (describing the arctic landscape as “inhospitable” and discussing the Canadian government’s initiative to improve Inuit quality of life).

\textsuperscript{77} See generally DONNA HART & ROBERT WALSSUSSMAN, MAN THE HUNTED: PRIMATES, PREDATORS AND HUMAN EVOLUTION (2005) (citing fossil evidence indicating man was prey to early mammals, including saber-toothed cats).

\textsuperscript{78} Barry Lopez reflects, “[h]unting wild animals to the point of extinction is a very old story.” LOPEZ, supra note 3, at 50. “Aleut hunters, for example, apparently wiped out populations of sea otter in the vicinity of Amchitka Island in the Aleutians 2500 years ago.” Id. Similarly, “[w]e lament the passing of the Eskimo curlew, the sea mink, the Labrador duck, Pallas’ cormorant, and Steller’s sea cow.” Id. at 52. Note, however, that the most recent “Vital Arctic Graphics” report of the United Nations Environmental Programme (UNEP) cites a different history, at least with respect to the first and last of these species: “[i]n the 1700s, Russian fur traders reached from Asia across to Alaska, leading to the extinction of the Steller sea cow and the near-extinction of the sea otter.” GRID-ARENDAL. VITAL ARCTIC GRAPHICS: PEOPLE AND GLOBAL HERITAGE ON OUR LAST WILD SHORES 19 (2005), available at http://www.grida.no/_res/site/file/publications/vitalarcticgraphics.pdf. Ironically, Gruening observes, “[t]he ruthless killing of sea otter and fur seal by the Russians led to the minimization of Alaska’s value in the eyes of the Russians and, among other motives, led to its sale to the United States.” Gruening, supra note 13, at 377.

\textsuperscript{79} See MALAURIE, supra note 5, at 185 (“A hunter is bound—very closely bound—to his dogs, but if one of them is hurt and is unable to work, his fate is sealed.”). Malaurie observed an Inuit hunter shoot a dog (one of the hunter’s favorites) after the dog had been found limping. Id.
the exclusive target of aggression. In “Law-Ways of the Primitive Eskimo” (1941), the American anthropologist E. Adamson Hoebel published a legal ethnography of Inuit life at the time.  

“Anthropologists are unanimous in their admiration of the Eskimos,” Hoebel affirmed. Yet, in the context of these harsh exigencies, Hoebel notes that the killing of children, invalids, and elderly people, when deemed necessary for communal survival, were accepted as legal forms of homicide. Such killings were “responses to the basic principle of Eskimo society that only those may survive who are able (or potentially able) to contribute to the subsistence economy of the community.”

Such a system of triage (at least as recently as seventy years ago) is explained by extreme conditions of scarcity, but it is disturbing nevertheless. In this context, notwithstanding the racist elements of Hobbes’ vision of aboriginal life, Europeans had reason to imagine the life of native Arctic peoples as nasty, brutish, and short. Moreover, indigenous nations engaged in blood feuds and wars, as discussed below.

As in our own day and civilization, perhaps the most territorial and predatory of all mammals were human beings.

It is also important to refrain from speaking of the Arctic’s native “people” as a single group. Rather, since the original crossing of the Bering land bridge, there has always been a large multiplicity of Arctic peoples. With small populations uniquely adapted to highly-differentiated physical environments that compose the many inhabited sub-regions of the circumpolar north, aboriginal peoples of the Arctic include hundreds of separate national and social groups,

81. Id. at 663.
82. Id.
83. Id. at 670–72.
84. Id. at 670. Hoebel notes that “[s]urplus children are subject to disposal.” Id. at 670. “This is effected by offering the child for adoption, and if there are no takers, by infanticide.” Id. at 670–71. Old and sick people were often asked or expected to kill themselves. Id. at 671–72. Like many clichés, the image of the noble self-sacrificing old Eskimo, walking in dignity into empty fields of ice, derives from an idealized version of empirical truth. But Hoebel notes that “legal homicide” could come in a variety of forms: “[s]tabbing, hanging, strangulation, blocking up in snow house to freeze and starve, and abandonment in the open are all used by various Eskimos.” Id. at 671. These were all acceptable forms of killing “because the strain upon the community well-being is eased by the act,” and because those who died violently were believed to be “transported directly to the best of the Eskimo heavens.” Id. at 672. Under extreme circumstances, disposal of the dead could be achieved to community benefit; Hoebel notes that starvation-induced cannibalism was a “legally acceptable,” albeit regrettable, emergency measure. Id.
85. Id. at 675.
86. UNEP, supra note 78, at 14–19.
each associated with one or more of six major language “families” (Indo-European, Uralic, Altaic, Eskimo-Aleut, and Na-Dene) or one or more additional “isolated” languages (e.g., Ketic and Yukagir). Each of these peoples maintains its communal history of ancestry, migration, and settlement, as well as its own unique array of economic, political, and cultural practices as they have evolved over time (particularly in response to each group’s history of relations with European-based traders, colonists, and state bureaucrats over the past five hundred years).

Even within a distinct aboriginal group such as the people we used to call “Eskimo” (we now use the indigenous name “Inuit”), one can identify many different sub-groups. For example, the Eskimo–Aleut culture developed roughly eight kya along the 1,300 km chain of Aleutian Islands in the Bering Sea, later branching into separate Unangan (Aleut for “coast” or “seashore”) and Inuit Eskimo nations. After crossing the Bering land bridge, the Inuit took another 1,200 or more years to reach Labrador. Hoebel explains that “[t]he practice of lumping the hundred or more local groups into seventeen larger geographical-cultural units is the ethnologist’s handiwork, not the Eskimo’s.” In turn, the Russian officials classified the Siberian Yakuts as a “nomadic people (with a tendency to settlement)” and the neighboring Tunguses as “a wandering people (with a tendency to

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90. Hoebel, supra note 80, at 663. Hoebel refers to the following early 20th century Inuit taxonomy: (1) Aleuts (inhabiting multiple islands off the coast of Alaska); (2) Pacific Eskimos (Prince William Sound); (3) Asiatic Eskimos (Capes Dezhnev, Chukotsk, Ulakhapan); (4) Bering Straits Eskimos (Bristol Bay, the lower Kuskokwim, Nunivak Island); (5) Colville Eskimos (Kobuk River); (6) Point Barrow Eskimos (Wainwright Inlet; Cape Smyth; Point Barrow); (7) Mackenzie Eskimos (Hershel Island, Liverpool Bay); (8) Copper Eskimos (Minto Inlet; Prince Albert Sound; Dolphin; Coronation Gulf; Kent Peninsula; Queen Maude Gulf); (9) Netsilik Eskimos (Adelaide Peninsula; Bellot Strait; Pelly Bay); (10) Caribou Eskimos (Baker Lake; Kazan River); (11) Iglulik Eskimos (Repulse Bay; Melville Peninsula; Pond’s Inlet); (12) Southampton Eskimos (Southampton Island); (13) South Baffin Islanders (Cumberland Sound; Frobisher Bay; Hudson Bay); (14) Labrador Eskimos (Atlantic coast; Hudson Strait); (15) Polar Eskimos (Humbolt Glacier; Melville Bay); (16) West Greenlanders (Melville Bay; Cape Farewell); (17) East Greenlanders (Angmagssalik Fjord; Scoresby Sound). Id. at 664.
Thus, generalizations break down and categorizations confound.

What have the indigenous groups and sub-groups, family-branches, nations, and ethnicities had in common throughout the millennia of their Arctic settlement and across the vast landscapes and varied ecosystems of the polar north? I wish to emphasize two themes: first, how indigenous Arctic peoples understood and defended sovereignty, territoriality, and national borders; and second, how they constructed and maintained sustainable hunting and sea-based economies over thousands of years.

A. Sovereignty and Territoriality

A national culture—the way of life of a people, evolved through the centuries—is a contribution to the world of infinite value, for when it has disappeared, nothing can replace it.

Terrence Armstrong, The Russians in the Arctic.

Ethnographer Ernest Burch describes the nineteenth century Iñupiac Eskimo nations in North America as “fiercely independent peoples who conducted external affairs in a very aggressive manner.” These external affairs included the conduct of wars against other nations for a variety of reasons: to expand territory; to capture better hunting grounds; to obtain more wives; to control the most lucrative trading channels in the five hundred year history of fur trade with Europeans; and to inflict vengeance on enemies.

When, in the 1990s, Burch asked Iñupiaq elder Robert Nasruk Cleveland to describe Eskimo peoples of Northwest Alaska, Cleveland replied that they were “nations, just like France, Germany, and England are today.” In the Iñupiaq language, the term is nunaqtigich. This understanding is perhaps unusually strong in the Alaskan Arctic, as compared, for example, to many Siberian and Scandinavian aboriginal peoples; not all Arctic indigenous peoples

91. Anderson, supra note 87, at 79.
94. Id. at 57–69.
96. Id. There is evidence that the Alaskan arctic peoples maintained an especially strong sense of national (as opposed to tribal) identity compared to aboriginal populations in other Arctic regions. Ernest S. Burch, Jr., Social Life in Northwest Alaska: The Structure of Iñupiaq Eskimo Nations 127 (2006).
understood communal self-determination in primarily national form. Nevertheless, throughout the circumpolar north, indigenous groups consistently regarded themselves as sovereign peoples. In one form or another they claimed sovereignty over defined territorial areas, and they exercised that sovereignty domestically (within the boundaries of the jurisdiction) and in external relations (with neighboring groups, often also understood as nations, in peace and war).  

As in France, Germany, and England, sovereignty and territorial control were integrated, mutually reinforcing concepts among indigenous Arctic peoples, and no less fiercely-held. More than just vague concepts, sovereignty and territoriality were clearly defined and strongly defended. In her examination of “Land Tenure and Polity of the Bering Strait Eskimos,” anthropologist Dorothy Jean Ray explained that every indigenous nation she studied “was as aware of its boundaries as if fences had been erected.”

Yet, paradoxically, borders between Arctic indigenous nations were in many ways porous—much more so than the policed, regulated borders of modern states. Notwithstanding clear knowledge of territorial demarcations, Arctic peoples moved back and forth across these boundaries constantly in the normal course of their activities. This is because the survival of hunter-gatherer communities required (and still requires) a nomadic, extremely intimate relationship with both the land and the herds of reindeer and caribou that know and respect no political borders.

B. Sustainable Resource Use

Over millennia following the Ice Age mammalian extinctions, all indigenous peoples have maintained, continually updated, and constantly utilized a vast and comprehensive empirical “database” of bioregional information and wisdom gained from deep, sustained

99. Id. at 309.
100. Id. (citing Dorothy Jean Ray, Land Tenure and the Polity of the Bering Strait Eskimos, 6 J. WEST 371 (1967)).
101. Id. Entering foreign territories, Iñupiaq Eskimos did so with full knowledge of their status and acted appropriately, either as trespassers (moving by stealth, potentially met by force) or guests (traveling openly, warmly greeted, invited to feasts and ceremonies). Id. At least in the Northwest Alaskan Arctic sub-region, “many members of most nations regularly used parts of other nations’ territories, at least some of the time, every year.” Id.
102. See id. at 310 (discussing how size of the range, the land upon which hunter-gatherers hunt, was greater than that of the estate, where they lived).
intimacy with the land and sea (steppe, tundra, forest, ice, snow, water, and cohabitating animals and plants). On the basis of this "traditional knowledge," the Arctic's aboriginal peoples have customarily practiced natural resource sustainability: maintaining small populations and subsistence-based societies; preserving animal, marine, and plant populations; replenishing communal traditions closely related to cooperative potlatch economies; passing along, from generation to generation, spiritual practices inherited from Siberian shamanic traditions; and preserving nuannaarpq (Inuit), the quality of "taking extravagant pleasure in being alive," throughout seasons of abundance and seasons of stark adversity.

The aboriginal peoples of the Arctic have always been hunters and gatherers, fishermen, and herders. Amazingly—notwithstanding tremendous social and economic changes brought by centuries of interaction with Europeans, commercial systems, and state bureaucracies—traditional economic, social, and cultural practices have endured. "Within the limits set by a miolithic culture," Hoebel writes, Eskimos "reveal a remarkable precocity in subsistence techniques." Necessity is the mother of invention; in the Arctic, the insufficiency of skills or tools means death. Like the Eskimos' ancient Yana ancestors who ingeniously beveled elegant spears thirty thousand years ago, the indigenous peoples of the Arctic developed tools and expertise in subsistence hunting and fishing in order to survive.

Stated simply in the most recent United Nations Environmental Program (UNEP) Arctic report, "Arctic peoples have developed their lifestyles through co-evolution with their surroundings." Depending on the physical environment of the territory in which the Arctic peoples live, this "co-evolution" corresponds to the harvesting and maintenance of sustainable reindeer/caribou or sea mammal stocks from generation to generation until the present day.

1. Reindeer/Caribou Peoples

Most aboriginal Arctic peoples inhabiting inland environments in Siberia (including the Chukchi, Chuvan, Dolgan, Even, Evenk, Khanti, Komi, Koryak, Nenets, Nganasan, Sakha/Yakut, Tungus and

104. See id. (noting that Eskimos are "resilient, practical and enthusiastic" and "take extravagant pleasure in being alive" despite being people "who live in a world where swift and fatal violence . . . is inherent in the land").
105. Hoebel, supra note 80, at 663.
106. GRID-Arendal, supra note 78, at 14.
107. Id.
Yukagir) and North America (including the Cree, Dogrib, Gwich’in, Inupiat, Inuit, Inuvialuit, Koyokon Dene, Innu, Metis, Naskapi and Yupilt) traditionally hunted, herded, harvested and lived among wild (and, in some cases, domesticated) reindeer and caribou for hundreds of thousands of years, and many continue to do so today.108 Small groups of hunters or shepherds followed the reindeer herds across vast distances, traveling on foot, often in silence, eating what they killed along the way. Their focused minds, eyes, and ears surveyed the subtle, minute transformations in animal behavior and migratory routes, the discipline or anxiety of the herds, and the shifting conditions of the physical environment: pastures, steppes, forests, and tundra; frozen and unfrozen lands; patterns of ice, wind, clouds, and sky.109 In an aboriginal Arctic society, the focus of a hunter “was not killing animals but attending to the myriad relationships he understood bound him into the world he occupied with them.”110

This is “indigenous knowledge”: sustained intimacy with the land, its flora, and its animal creatures derived from extraordinarily close attention to the physical world, exquisitely fine-tuned perception, and intuitive decision-making based on the lived awareness of hugely complex empirical data and constantly evolving and changing connections, webs, and relationships.111 This traditional knowledge (a living process of moment by moment sensory-based data-collection by a learned, practiced attunement to the land and all living things that inhabit it) is entirely distinguished from a Western conception of knowledge as corpus.112

109. See id. at 17 (noting the number of reindeer bones found in human camps along migration routes); Anderson, supra note 87, at 60 (“[H]erdsman trusted the instinct of the reindeer to travel together in one group.”).
110. López, supra note 3, at 200.
111. For an excellent discussion of indigenous knowledge sustained by aboriginal Arctic peoples today, see Henry Huntington & Shari Fox et al. eds., The Changing Arctic: Indigenous Perspectives, in Arctic Climate Impact Assessment (Carolyn Simon et al. eds., Cambridge Univ. Press 2005).
112. See Fikret Berkes et al., Ecological Complexity, Fuzzy Logic, and Holism in Indigenous Knowledge, 41 Futures 6, 7–8 (distinguishing between traditional knowledge, “evolving by adaptive processes and handed down through generations by cultural transmission,” and the Western concept, which sees knowledge “as the thing known,” as opposed to a process). Learned scholars of the European university tradition demonstrated mastery of an officially-recognized discrete, privileged “body of knowledge” affiliated with a proud scholarly tradition often dating to the philosophers, political theorists, and natural scientists of Greek antiquity. Id. at 9. Of course, this is an extraordinarily rich tradition, upon which we depend in this day. Still, a corpus, at least by implication, is something dead. Cf. id. 6–12 (2009) (discussing how indigenous knowledge is able to deal with ecosystems as complex adaptive systems); Fikret Berkes et al., Exploring the Basic Ecological Unit: Ecosystem-Like Concepts in Traditional Societies, 1 Ecosystems 409, 409–15 (1998) [hereinafter Berkes, Exploring the Basic Ecological Unit] (noting that the “chasm between indigenous knowledge and Western
Take for example the concept of land. The word for “land” in Dene is *ndeh*; in Eastern James Bay Cree, *ashkii*. These indigenous terms convey a very different understanding from European conceptions of a meaning much closer to what current natural scientists refer to as ecosystem—the complex, dynamic physical environment in which human beings, animals, and plants live closely with each other and interact.113 As Fikret Berkes observes, “[t]he Western James Bay Cree consider that ‘the Indians go with the land’ as part of ‘land’s dressing’ in the sense that the presence of humans makes the land complete.”114 Humans make the land complete because they belong to the land, they are part of the land, and they live on the land with all of the earth’s creatures—including the spirits of animals, natural objects, and human ancestors.115 These are not word games. Rather, they suggest ways of living required for human survival in a world where poor decisions mean freezing or starving to death.

The Siberian Eveny reindeer people, for example, believe that “[a] hunter can kill a wild animal only when it offers itself at the behest of Bayanay.”116 Bayanay is the name of wild nature spirit, appearing in the form of an old man “who is the ‘owner’, ‘keeper’, or ‘master’ (in Russian, *khozyzyn*) of the animals and of the forest in which they live.”117 It is Bayanay “who decides whether to give an animal or withhold it, place it in the hunters path or send it off in another direction.”118 He is temperamental and prone to hurt and anger; his ways are mysterious, and his generosity can never be taken for granted.

At one moment he may favor you, so that you and your family eat well; at another he may desert you, so that you starve. To encourage animals to give themselves, humans must strive to be worthy of Bayanay’s favour by pleasing his creatures. An animal will give itself only to a hunter who treats its body and soul correctly. When it is reincarnated, it will offer itself again to the human who respected it the previous time.119

science has evaporated in recent years” and that “[s]ome areas of science, such as chaos theory, resemble ‘savage thought’.

115. *Id.*
117. *Id.*
118. *Id.*
119. *Id.* at 263.
2. Sea Mammal Peoples

Indigenous coastal groups have always fished and hunted for sea mammals. Among these peoples, the Eskimo/Inuit were among the most skilled and aggressive. Their most valued prey was the majestic bowhead whale (*balaena mysticetus*). “Found only in Arctic and sub-Arctic waters,” bowheads are renowned for their great size (an average length of 50–60 feet with mouths alone that can be as long as 16 feet, as high as 12 feet, and as wide as 8 feet, and tongues weighing about one ton); the deep tones of their “singing”; and their long natural lives (at a life expectancy well over a hundred years, bowhead whales “may be the longest-lived mammal on Earth”). They have only two known predators: killer whales and human beings. To hunt a bowhead, Inuit whalers traditionally paddled long distances silently in *umiaqs* (small boats made from walrus skins or the stitched hides of bearded seals) until they were close enough strike the whale with a harpoon.

The enormous size, weight, and power of each bowhead presented extremely difficult challenges for the small aboriginal communities. A successful hunt required sustained pursuit, repeated harpooning, and life-threatening danger. Bowheads in pursuit can dive through openings in the ice, and swim beneath it for long periods, escaping their pursuers and leaving them stranded or stuck in the ice. With the strength and power to smash back up through ice seven inches thick, bowheads could easily knock an *umiaq* out of the water like a toy, leaving its passengers to drown. Wounded bowheads, harpoons sticking out of their bodies, have thrashed violently in mortal combat with their human assailants.

120. GRID-ARENDAL, supra note 78, at 14.
121. RICHARDS, supra note 25, at 580.
122. See Michael Vlessides, Bowhead Hunt, Part II (Inuit Whale Hunting Traditions), 118 CAN. GEOGRAPHIC 28, 28 (1998) (noting that bowhead whale hunting traditions are a cornerstone to the Inuit’s effort to rebuild community and a sense of self-worth).
124. Id.; see also RICHARDS, supra note 25, at 578 (describing the behaviors and predators of the bowhead whale); Polar Conservation News (PCO), Bowhead Whale, http://www.polarconservation.org/education/arctic-animals/arcticwhales/cetaceans/bowhead-whale (last visited Oct. 4 2009) (same).
125. RICHARDS, supra note 25, at 583; STREEVER, supra note 44, at 154.
126. See RICHARDS, supra note 25, at 582 (noting that nearly the entire community’s service was required for a day or more in order to butcher and haul the meat and blubber after a kill and that “only settled, relatively densely populated communities could mobilize the human energy to hunt whales successfully”).
127. Id. at 582–84.
128. See STREEVER, supra note 44, at 127–28 (describing bowhead tactics for navigating icy waters).
129. See id. at 128 (discussing the ability of bowheads to break through ice).
When Inuit harpoonists succeeded in killing the great animal, the whale had to be hauled to the beach, an extraordinary feat in itself. Then came the slaughter, the carving up of the meat and muktuk (blubber with skin attached), the extraction and storage of oil, the carrying of heavy loads of blubber, the digging of freezer pits in the permafrost, the packing of valued meat into the pit, and the hauling and delivery of surplus to neighboring peoples for trade. This complex and enormously labor-intensive process had to be completed with great care and speed in order to collect and preserve as much food as possible, prevent rotting, and avoid waste. To accomplish these goals required the urgent and intensive collaborative effort of all able men and women of the kinship group.

In sum, the required planning, organization, struggle, and risk involved in bowhead whaling was, for a small Inuit community, as gargantuan as the prize itself. It was a dance of life and death that could not feasibly be repeated often. From an economic perspective, because the native populations were so small and each bowhead so large, the meat and muktuk from just one kill could sustain the community for some time. Moreover, the limited ability to store meat before it would rot made it excessively wasteful to catch and kill too many whales. For all of these reasons, a successful whaling year would be measured by only a few bowhead kills, and, thus, “[i]t is doubtful that human predation in the Thule period had more than a slight impact on the stocks of whales in the Arctic.”

After working together to pull in, harvest, and butcher the catch, the community gathered ceremonially to share the meat and honor the animal spirits that sustained their lives. In 1922, the great French ethnographer Marcel Mauss wrote perhaps the most elegant
Western interpretation of the *potlatch* ceremony common to indigenous peoples in the Western Arctic and the Bering Straits (even if Mauss, chair in the “History of Religion and Uncivilized Peoples” at the Ecole Pratique des Hautes Etudes, didn’t get his facts first-hand, or necessarily straight). In *The Gift: The Form and Reason for Exchange in Archaic Societies*, Mauss finds in the Eskimo *potlatch* a powerful fusion of economic, community, and spiritual life, in turn producing “an effect not only upon men, who vie with one another in generosity, not only upon the things they pass on to one another or consume at it, not only upon the souls of the dead who are present and take part in it, and whose names have been assumed by men, but even upon nature.” For Mauss, at the heart of the *potlatch* lies the secret of sustainable economies: “that the exchange of gifts produces an abundance of riches.”

With shared food came entertainment, laughter, invigoration of social bonds, and renewed connections to the ancestors, animals, and all spirits living and dead. Recognizing the animal sacrifice made for human well-being, the community symbolically initiated its own sacrifice rituals. “The remains of the banqueting sacrifice are cast into the sea or scattered into the winds; they return to their land of origin, taking with them the wild animals killed during the year, who will return the next year.” In the Tlingit, Haida, and Eskimo *potlatch*, the sacrificial component of the ceremony is intensified by the intervention of masked shaman priest-sorcerers, “possessed by the spirit whose name they bear.” For Mauss, the Arctic *potlatch* unites creation and destruction by facilitating exchange—not only between members of the community but also (and more importantly) between living human beings and the spirits of the dead and the gods, “they who are the true owners of the things and possessions of this world.”

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137. See Michel Panoff, *Marcel Mauss’s “The Gift” Revisited*, 5 MAN 60, 60 (1970) (suggesting that the facts did not escape Mauss, they were simply irrelevant to his argument).
138 MAUSS, supra note 136, at 14.
139. Id.
140. Id.
141. Id. at 15.
142. Id.
143. Id. at 16.
V. TERRA NULLIUS

The Vikings were first, conquering Iceland and Greenland and claiming each prize as Ultima Thule. In 986, Eric the Red escaped Norway, where he was wanted for murder, made his way to Greenland with twenty-five ships full of Norwegian/Icelandic immigrants to establish a Viking settlement of 450 people, and fathered a boy (Leif Ericson) who continued in the family business. Southwest Greenland became home to thousands of Norse settlers over the course of the next five centuries, when the population was devastated by a soil erosion, malnutrition, and starvation triggered by climate change (a “little” ice age). Still, Eric the Red had launched the first wave of European colonization in the polar north. Many waves followed, each claiming sovereignty and territory under international law principles: the discovery, conquest, and possession of vacant land. Centuries later, new explorers and conquerors, and traders and colonists from Western Europe, Scandinavia, and Russia, as well as from the descendants of British colonists in North America, arrived in Arctic lands.

The nature of the Arctic grail—the motivation to embark on great endeavors and sacrifice in desolate places—differed for each group that set out ever northward on polar journeys. Seeking

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147. See generally Robert J. Miller, The Doctrine of Discovery in American Indian Law, 42 IDAHO L. REV. 1 (2005) (discussing the doctrine of discovery, the element of possession, and the principle of terra nullius, or vacant land). Archeological evidence suggests that the Vikings, notwithstanding their legendary ruthlessness, had legitimately conquered “vacant land”; i.e., apparently there were no native peoples in the southwestern part of the enormous island at the time of the Norse settlement. Dale MacKenzie Brown, The Fate of Greenland’s Vikings, ARCHAEOLOGY, Feb. 28, 2000, http://www.archaeology.org/online/features/greenland/. The Thule people, ancestors of the modern Inuit, came two hundred years after the Vikings arrived and lived in different areas. See Else Østergård, The Remarkable Clothing of Medieval Norse Greenlanders, in ARCTIC CLOTHING 95, 95 (J.C.H. King et al. eds., 2005) (stating that the Norse Greenlanders and the Thule Eskimos were two different populations that “never mixed”). After the Norse colonists had been wiped out (and their survivors, if any, abandoned Greenland), the Thule People took over the abandoned Viking settlements, and controlled all of Greenland’s coastal areas. Samuel M. Wilson, The Vikings and the Eskimos, 26 NAT. HIST., Feb. 1992, at 18, 21.
149. Id.; see also PIERRE BERTON, THE ARCTIC GRAIL (1988) (detailing diverse motivations for Arctic exploration).
path-breaking achievement and national glory, explorers sought to extract the Arctic’s mysteries and discover its pristine lands and marine passages.\textsuperscript{150} For empire and treasure, sovereign kings and parliaments funded Arctic journeys and exploits.\textsuperscript{151} For state and personal profit, entrepreneurs and traders sought to capture sources of animal and mineral products of tremendous value in imperial coffers and the global trading system.\textsuperscript{152}

These varied drives and visions thus coalesced into a mutually-reinforcing, interdependent triumvirate of Arctic expansion: scientific exploration, made possible by state and private investment (i.e., the expansion of geographic, navigational, and biological knowledge); manifest destiny (i.e., the expansion of national sovereignty, territory, jurisdiction, boundaries, and military and bureaucratic control by each of the Arctic Sea’s littoral states); and the drive of commercial actors—financiers, commercial entrepreneurs, merchants, traders, industrial manufacturers, and state-sponsored corporations—in early modern European capitalist economies to exploit increasingly integrated global markets (i.e., the “world hunt” to secure high-value natural resource supply for extraction and sale on ever-expanding international markets).\textsuperscript{153}

The achievement of each required the achievement of the others. Inexorably, discovery led to conquest; conquest led, eventually, to occupation, thus confirming sovereignty for the sponsoring European state under the international law principle of \textit{terra nullius} (land without inhabitants); and occupation led to the extraction of natural resources for European, colonial, and world markets.\textsuperscript{154}

\begin{footnotesize}
\begin{enumerate}
\item[150.] Berton, supra note 149.
\item[151.] James P. Delgado, Across the Top of the World: The Quest for the Northwest Passage 19 (1999).
\item[152.] See generally id. (discussing the various natural resources sought on arctic explorations).
\item[153.] The concept of a “world hunt” for natural resources, emerging in the early sixteenth century and continuing to our own era, comes from John F. Richards’ invaluable Unending Frontier, supra note 25, at 4. The application of this international hunt in Arctic regions follows Richards’ rigorous analysis of a much larger global process in early modern world history, a process in which European commercial actors (investors, hunters, traders, shippers and merchants), often with state-sponsorship and funding, “voraciously and systematically located, extracted, processed, packaged, shipped, priced, sold, and consumed wild animals in ever greater quantities over ever greater distances” and increasingly remote areas across the globe. Id. at 9.
\item[154.] Stuart Banner, Possessing the Pacific: Land, Settlers, and Indigenous People from Australia to Alaska 2 (2007). In the case of the Northern seas, the extraction of natural resources proceeded on an expedited path, as the companion principle of \textit{mare nullius} required no occupation or settlement. See Monica Mulrennan & Colin Scott, Mare Nullius: Indigenous Rights in Saltwater Environments, 31 Dev. & Change 681, 693–702 (2002) (examining the quandary this framework creates for marine hunters and fishers using the case of Quebec Crees and Inuit to illustrate).
\end{enumerate}
\end{footnotesize}
*Terra nullius* blessed this triumvirate with legal claims to title and resource control by expanding Russian, European, and North American nation states—sovereignty over territory for land without a sovereign. The fact that northern lands were inhabited by indigenous nations for thousands of years had no legal or political consequence in this system. The treatment of Arctic aboriginal peoples differed radically in each geographical and colonial context. In some cases, they were subject to military defeat and massacre; in other cases, they were economic partners in trade (although rarely, if ever, on an equal basis). But in no case was an indigenous national claim to self-determination and sovereign territory acknowledged or respected. “From the sixteenth century onward,” writes legal historian Stuart Banner, “indigenous people had never been understood to possess the power to withstand a claim of sovereignty by Europeans or their descendants.”

As a result, the political ecology of all Arctic regions changed radically. These changes opened up new economic opportunities for indigenous peoples exposed, for the first time, to international markets for Arctic resources and products. Tragically, however, in the great majority of cases these changes accrued to the immense detriment of aboriginal nations and peoples and to the biodiversity of the lands and seas that had provided sustenance to them, and kept them alive, for countless generations.

A. Consult Any Atlas

You will find the names of brave Arctic explorers and adventurers inscribed on lands and seas they discovered. Take the Barents Region and Barents Strait, for example, named for William Barentsz, who sailed for Holland on multiple journeys between 1594 and 1596. The 1872 Austro-Hungarian North Pole expedition led to the naming of Franz Josef Land, a small archipelago (later acquired by Russia) near the Nansen Basin and Nansen Cordillera—each in turn named for the Norwegian geographer, adventurer, and

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156. Id. at 315–20.
158. Id. at 298.
160. Id.
162. John Joseph Shillinglaw, A Narrative of Arctic Discovery, From the Earliest Period to the Present Time 70–74 (2d ed. 1851).
diplomat Fridtjof Nansen, who nearly reached the North Pole on sled in 1893 (five years earlier Nansen been the first to cross the Greenland ice sheet on skis). Inpired by Nansen, fellow Norwegian Roald Amundsen led the first successful navigation of the Northwest Passage between the Atlantic and Pacific Oceans in 1903; the Amundsen Gulf in the Arctic Sea bears his name.

The Canadian North is home to Frobisher Bay, named for Martin Frobisher (arriving there in 1578, he took an Inuk hostage, bringing him to London as a curiosity for the Queen’s edification); Davis Strait, named for John Davis (sailing 1585-1587); Baffin Bay and Baffin Island, named for William Baffin (exploring the region from 1612-1616); the Beaufort Sea, Beaufort Island, and Beaufort Inlet, named in honor of Francis Beaufort, head of the Hydrographic Office of the British Navy (1829-1854); and McClintock Channel and MacKintosh Island for Francis McClintock, who searched relentlessly for the lost John Franklin and his crew (1848 to 1859). In fact, each of these British (or Commonwealth) explorers also claimed territories on behalf of Her Majesty the Queen of England (or His Majesty the King, depending on the dates and reign).

In 1829, the Scottish explorer John Ross discovered a peninsula in what is now Nunavut, Canada; he named it the Boothia Felix, in honor of Felix Booth, the financier who had paid for his trip. The Irish explorer Sir Robert John Le Mesurier McClure spent years in the Canadian Arctic (1838-1854) under British command; today, the McClure Strait bears his name. The great English navigator Henry Hudson discovered Hudson Bay and Hudson Strait in 1610 in his search for a Northwest Passage to Cathay (among many other voyages, including exploration of New Amsterdam’s Hudson River).

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165. Bone, supra note 6, at 51.
167. Id. at 91 (entry for “Boothia Peninsula (Canada)”). It is now called, more simply, the Boothia Peninsula. Id.
168. Id. at 417–21 (entries for “McClure, Robert” and “McClure Strait”).
169. Id. at 309–15 (entries for “Hudson Bay (Canada),” “Hudson, Henry,” and “Hudson Strait (Canada)”). Hudson sailed on behalf of imperial and commercial enterprises sponsored by Britain, Holland, and even Russia (including the British East India Company, the Dutch East India Company, and the London-based Muscovy Company). Id. at 309–15, 475 tbl. 18. In Hudson’s cosmopolitan tradition, the modern Icelandic-Canadian-U.S.-educated explorer Vilhjálmur Stefánsson (1879–1962) lived with Eskimos of the Mackenzie Delta (named for Scottish-Canadian explorer Sir Alexander Mackenzie), id. at 389–90 (entry for “Mackenzie, Alexander”), tried to claim
Among Russian explorers, the Laptev Sea is named for Dmitry Laptev and his cousin Khariton Laptev, members of Russia’s Baltic Fleet, who mapped the Kamchatka and Siberian coasts from 1739-1742.\textsuperscript{170} The Anjou Islands and Wrangel Island, each off the coast of Siberia, are named respectively for Pyotr Fyodorovich Anjou and Ferdinand Petrovich Wrangel, who mapped them in the 1820s.\textsuperscript{171} In 1948, having discovered an underwater ridge in the middle of the Arctic Sea, the Soviets reached back in Russian history to name it after the eighteenth century scientist Mikhail Lomonosov (who in 1764 had organized an expedition to find the fabled Northeast Passage across the polar seas).\textsuperscript{172} And we honor poor Vitus Bering, who, after years of struggle on the Kamchatka coast, died of scurvy while “listening to the screams and moans of his dying men” on the island that would later (like the strait, sea, glacier, and land bridge) bear his name.\textsuperscript{173}

Consult any atlas and one will find the names of the great, courageous European explorers of Arctic lands and seas. These men undertook momentous journeys on behalf of nation, king, or queen, and triumphed over adversity or died miserably in a failed effort to escape a frozen prison of polar ice. However, even in the most detailed maps of the circumpolar North, it will be difficult to find the names of any man or woman born in a Arctic or Sub-arctic

\begin{itemize}
\item Wrangel Island for Canada (when he failed, he tried to claim the island for Britain, also unsuccessfully), joined the U.S. Army’s Cold Regions Research and Engineering Laboratory in New Hampshire, and advocated in support of the Soviet Union’s proposed Jewish socialist republic in Siberia. Vilhjálmur Stefánsson, http://www.absoluteastronomy.com/ (search for “Vilhjálmur”) (last visited Oct. 4, 2009).
\end{itemize}

\textsuperscript{173} Streever, supra note 44, at 5. We remember the explorers who returned in triumph to London, Amsterdam, Moscow, Oslo, and other European capitals, as we should. But, we should also remember those who died along the way, suddenly (by falling into crevices and ice pits, or drowning in turbulent seas), or slowly (by starvation, frostbite, gangrene, hypothermia, scurvy, exposure, or dehydration). Cf. 1 Adolphus Washington Greely, Three Years of Arctic Service: An Account of the Lady Franklin Bay Expedition of 1881–84 and the Attainment of the Farthest North, at vii (New York, Charles Scribner’s Sons 1886) (“[R]emembering always that I speak of the dead, and being able in comfort and plenty to judge more leniently than when slowly perishing from cold, disease, and starvation.”). We should especially honor the explorers and crew members who suffered terribly and died anonymously without any island or bay named after them, such as the dead sailor discovered by Horace Greely frozen solid in the Arctic ice, and his frostbitten colleague, still alive, “but without hands or feet, and with a spoon tied to the stump of his right arm.” Malaurie, supra note 5, at 366 (citing 2 Greely, supra, at 329); Streever, supra note 44, at 21.
community, who grew up there and had made their home there throughout their lives. 174  To the victors go the spoils—and the histories and the maps. Consult any atlas, and one will find the names of no Evenky, Sami, or Khanti shamans; no Komi or Dolgan reindeer people; no Inuit or Aleut fishermen; no Tlingit, Athabaskan, Dene, Dogrib or Gwich'in chiefs; nor a remembered hero of any other indigenous nation. 175

B. The Global Fur Trade

Since the early Middle Ages, writes John F. Richards, “temperate-zone Christian, Islamic, and Confucian worlds have demanded high-quality furs.” 176  To meet this demand, Russian state and commercial interests required access to large numbers of furbearing animals from which sufficiently thick pelts could be processed, sold on international markets, and transported to foreign purchasers in cold climates for whom furs provided highly-valued comfort, status, and prestige. 177  Through economic domination of Mongol and Tatar khanates since the mid-fourteenth century, Moscow effectively controlled the Siberian fur trade, thereby enabling Russian access to the best, softest pelts. 178  However, by the late sixteenth-century, foreign demand for furs exceeded Russian-controlled supply. 179  To secure high quality product in far greater quantity, and to extend the power of the nascent Russian state apparatus, the Kremlin sponsored infiltrations and military invasions of Sibir and other Tatar-controlled Siberian khanates, campaigns that resulted in Tatar defeats and Russian annexation under the authority of the Tsar. 180  By 1620, Russia had seized all of Western Siberia. Over subsequent decades, Cossack expeditions and invasions led to the Tsar’s further conquest of Central and Eastern Siberia as well. 181

174. One finds the same cartographic substitution in conquered territories throughout the world. See, e.g., MERON BENVENISTI, SACRED LANDSCAPE: THE BURIED HISTORY OF THE HOLY LAND SINCE 1948, at 14 (2000) (concerning the production of post-1948 maps of Israel with Hebrew in the place of Arabic names); BRIAN FRIEL, TRANSLATIONS (Samuel French 1981) (concerning the 1833 production of maps of Ireland with English in the place of Gaelic names).

175. One exception is the tiny island of Oodaaq, discovered in the ice above Kaffeklubben, Greenland in 1978, named for the Eskimo advisor to Peary in his 1909 North Pole journey. LOPEZ, supra note 3, at 282–83. Also note the use of Inuit names in Greenland and Nunavut following recent achievements in self-determination. See infra notes 487–88 and accompanying text.

176. RICHARDS, supra note 25, at 517.

177. Id.

178. Id.

179. Id. at 519.

180. Id. at 519, 523.

181. Id. at 517.
Throughout this process, aboriginal nations responded to Russian invaders with whatever force they could muster.\textsuperscript{182} However, “[t]he killing power of Russian muskets and cannon was far superior to any weapons the Siberian natives employed.”\textsuperscript{183} Russian forces seized the animal herds of the several nations they conquered, including the Tungus (Evens) and Yakuts of Central Siberia, the latter of whom “maintained large herds of horses and cattle” on communal grazing lands; the “reindeer Yukagirs,” who migrated with the wild reindeer herds, and the “settled Yukagirs” who lived in cabins, fished and hunted elk; and many other nations.\textsuperscript{184}

Having wiped out indigenous resistance, the Russians demanded the “ritual submission” of each member of each subdued nation: the swearing of allegiance to the Tsar, and, most importantly, the delivery of “a specified number of furs and pelts in payment of the iasak, an annual tax.”\textsuperscript{185} Regular enforcement and collection of the iasak, applied to native populations only (Russian settlers were exempt), was carried out ruthlessly by newly installed military governors.\textsuperscript{186} To ensure payment of tribute obligations, Russian governing officials took hostage of one or two leading men from each native community and kept them captive under military guard.\textsuperscript{187} Failure to deliver the required number and quality of furs could lead to the abuse or execution of the hostages.\textsuperscript{188}

The initial iasak obligation was ten to twelve sable pelts per man per year.\textsuperscript{189} To meet this requirement, subsistence harvesting practices had to be abandoned and migration patterns altered, especially as indigenous hunters suddenly had to compete with Russian commercial trappers who now occupied their lands and seized their animals.\textsuperscript{190} Massive over-hunting led to rapid declines in sable populations, forcing Tsarist authorities to reduce the annual iasak requirement to five and then to three pelts per man.\textsuperscript{191} But military governors exacted further payment of furs as bribes, gifts, and favors.\textsuperscript{192} Indigenous men who failed to comply could find their wives and children taken as slaves, or all of their tools and
possessions seized. In some cases, the men themselves might be seized, imprisoned, and tortured in the military barracks.\footnote{193}

With the diminishing supply from over-hunting, the Chinese market in particular offered higher and higher prices for fine Siberian furs.\footnote{194} In turn, Russian authorities squeezed the economy of coerced indigenous taxation and excessive competitive commercial trapping to the breaking point.\footnote{195} “By the 1690s,” Richards observes, “sables had vanished as far east as the vicinity of Yakutsk on the Lena River.”\footnote{196} Having driven the Siberian sable population to extinction, Russian traders shifted the fur trade toward the production of pelts from other species of Siberian animals, including bears, wolves, wolverines, foxes, bobcats, cats, minks, weasels, and ermines (the latter a new favorite in the post-sable Chinese market), further distorting, if not destroying, traditional subsistence economies of Siberian indigenous peoples.\footnote{197}

As in Siberia, the subsequent conquest and colonization of the Canadian Arctic was largely fueled and directed by the profitability of the international fur trade and the need to acquire secure sources of high-quality animal product.\footnote{198} French and English explorers and hunters competed for the best trading posts, bringing them into contact and into commercial relationships with indigenous nations.\footnote{199} The Hudson’s Bay Company (incorporated in 1670 by a British Royal charter granting a monopoly over the entire Arctic Canadian fur trade for “the Governor and Company of Adventurers of England trading into Hudson Bay”\footnote{200}) dominated the trade for three centuries and remains in operation today.\footnote{201} French traders later established the competing North West Company in Montreal, and indigenous peoples worked with both companies, selling furs for later distribution to international markets, primarily to meet the growing demands for furs in European fashion.\footnote{202}

In Siberia, indigenous Arctic nations had been victims of military conquest, naked brutality, and economic extortion at the hands of

\footnotesize{\textbf{References}}

\footnote{193}{Id.}\footnote{194}{Id. at 537.}\footnote{195}{See id. at 536 (“It was this steady practice of hunting out all available areas behind the moving frontier that bolstered the total annual catch and helped exhaust the fur-bearing stocks in Siberia.”).}\footnote{196}{Id.}\footnote{197}{Id. at 544–45.}\footnote{198}{See Bone, supra note 6, at 51–56 (describing the establishment of the Hudson Bay Company in order to develop a consistently, and highly, profitable fur trade with natives).}\footnote{199}{Id. at 51.}\footnote{200}{Hudson’s Bay Company, Our History, http://www.hbc.com/en/history.html (last visited Oct. 4, 2008).}\footnote{201}{Bone, supra note 6, at 51.}\footnote{202}{Id. at 51, 56.}
Russian Cossacks and military officers. In contrast, aboriginal peoples of Northwest Canada were often incorporated into English and French trading systems, valued for their geographical knowledge, and compensated for the animals and furs they provided. But the economic relationship between Europeans and aboriginals was never equal; native peoples were frequently subject to exploitation. On an expedition to northern Alaska in 1879, John Muir spoke to an old Chilcat shaman. “All the white men I have heretofore met wanted to get something from us,” he told Muir. “They wanted furs and they wished to pay for them as small a price as possible. They all seemed to be seeking their own good—not our good.” On a follow-up expedition that Muir took the following year, an encounter with two families of Hoona Indians provides an illustrative accounting of the Chilcat’s lament:

They had exchanged five sea-otter furs, worth about a hundred dollars apiece, and a considerable number of fur-seal, land-otter, marten, beaver, and other furs and skins, some $800 worth, for a new canoe valued at eighty dollars, some flour, tobacco, blankets, and a few barrels of molasses for the manufacture of whiskey. The blankets were not to wear, but to keep as money, for the almighty dollar of these tribes is a Hudson’s Bay blanket.

With much less cruelty than in Siberia, but with no less effect, the traditional subsistence economies of Northwest Canadian and Alaskan native peoples were undermined by exploitative trade relationships, over-hunting generated by intensified market demands for new sources of fur supply, and growing social dependency on cash-based purchases of processed goods.

Of these goods, the most destructive were guns and alcohol. To obtain money for pelts and furs, native peoples could use purchased guns to hugely increase the number of animals killed. Writing about Muir’s travels to the Alaskan and Canadian Arctic, Donald Worster highlights Muir’s dismay at witnessing the rapid decimation of animal populations that had been sources of food since time immemorial. In his 1879 trip to St. Lawrence Island, for example, Muir had been particularly impressed with the dignified self-reliance of native Inupiats. “Dressed in their roomy furs, tied at the waist,
they seem better-dressed than any other Indians I have seen.”

Moreover, they “are better behaved than white men, not half so greedy, shameless, or dishonest. . . . There was a response in their eyes which made you feel that they are your very brothers.”

But Muir witnessed traders illegally selling guns to Inupiats off Alaska’s Kotzebue Sound, trading repeating rifles for furs, ivory, and whalebone. With guns, Worster notes, the Inupiats “could satisfy their seemingly insatiable hunger for trade goods,” enabling them to kill large numbers of reindeer and caribou for hides, which they could sell to traders, rather than keeping the valuable furs for their own clothing and harvesting meat for their own community subsistence, as they had always done before.

“Suddenly an age-old relationship between native societies and the animals that supported them had been disrupted,” Worster observes. “A stable balance between predator and prey had begun to fall apart.” Guns transformed the shared, sustainable commons into a tragic arena of competition between tribes, eager to collect the most pelts for trade who could now kill far more animals more quickly than had ever been possible using traditional hunting methods. “The reindeer has in this manner been well-nigh exterminated within the last few years,” Muir laments. Meanwhile, Muir observed the captain and crew of his own ship shooting walruses for their tusks, or just for target practice, and leaving the carcasses to rot, thus depleting another traditional source of furs and meat for indigenous tribes.

Among the greatest tragedies was the growing dependency of native peoples on liquor provided to them by foreign traders in exchange for valuable furs. The sudden influx of alcohol into indigenous communities launched cycles of addiction and self-destruction devastating traditional cultures and self-reliant family

213. Id. (citing 7 JOHN MUIR, THE WRITINGS OF JOHN MUIR 27–31 (William Frank Badé ed., Houghton Mifflin 1917)) (internal quotation marks omitted).

214. Id. at 274 (citing 7 MUIR, THE WRITINGS OF JOHN MUIR, supra note 213, at 76–77) (internal quotation marks omitted).

215. Id. at 268.

216. Id. at 248, 264–65, 268.

217. Id. at 273.

218. Id.

219. Id. at 268.

220. Id. (citing 7 MUIR, THE WRITINGS OF JOHN MUIR, supra note 213, at 133–34, 139) (internal quotation marks omitted).

221. Id. at 268. Russian hunters had previously targeted sea otters off the coast of Siberia and the Aleutians. RICHARDS, supra note 25, at 543. With a full boatload of furs returning between ten and thirty thousand rubles (a profit equal to twice the cost of the expedition), the second half of the eighteenth century brought in harvests of 186,754 pelts. Id. at 543–44. Sea otter populations were decimated, and the species disappeared from the region’s seas. Id. at 544.
life. Muir describes the harrowing sounds coming from a village of Alaskan Hootsenoo Indians a half-mile away, "a storm of strange howls, yells, and screams rising from a base of gasping, bellowing grunts and groans." Muir, terrified, asked his native interpreter what torments had caused the "demonic howling." It was only the "whiskey howl," his guide explained "and pushed quietly on."

C. The International Whaling Industry

And God blessed them: and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

Genesis 1:28.

Seizing Siberian and Canadian Arctic territories to capture fur-bearing animals, Russian and European soldiers, hunters, and traders acted under the umbrella of state sovereignty claims that, in turn, rested on the customary international law doctrine of terra nullius. In the case of the Northern seas, the extraction of natural resources proceeded even more aggressively, as the companion principle of mare nullius included no requirement of occupation or settlement. In Mare Liberum (1609), the Dutch legal scholar Hugo Grotius argued that the sea, like air, is "so limitless that it cannot become a possession of any one," and that her inexhaustible fish stocks and other resources can never be depleted. At the turn of

222. See Worster, supra note 209, at 248, 265 (noting the abusive and violent behavior of Alaskan natives after drinking and stating that Muir "condemned the ubiquitous supply of alcohol").

223. Muir, supra note 213, at 131–32.

224. Id. at 132.

225. Genesis 1:28 (King James).

226. See Miller, supra note 147, at 45, 46 n. 275, 69 (describing the race between England, Spain, Russia, and the U.S. to rely on the Doctrine of Discovery in order to gain control over the lucrative fur trade posts of the Pacific Northwest and noting that in a letter to Russia, John Quincy Adams disputed the argument that ownership required permanent occupation by arguing the principle of terra nullius). In this case, terra nullius stood for the proposition that lands that "were not possessed by any person or nation, or [that] were occupied and possessed by non-Europeans but [were] not being used in a fashion that European legal systems approved, were considered to be waste or vacant." Id. at 15. Powerful nations could thus rely on two factors: "first, the land was available if other European countries were not in actual possession, and, second, the land was available even if it was occupied and in use by natives because it was considered legally 'vacant' . . . and open to appropriation by Europeans." Id.


the seventeenth century, when these words were written, no scientist would have disagreed; in Arctic waters, in the centuries that followed, Europeans acted accordingly.229

As described above, indigenous peoples living on Arctic coasts had engaged in subsistence hunting of bowhead whales for thousands of years. In the early sixteenth century, French Basque vessels discovered whaling grounds in the Strait of Belle Isle between Labrador and Newfoundland, launching a new era of large-scale, European-based commercial whaling in open Arctic and sub-Arctic seas.230 Whales were killed for blubber and bone, but by far the most important driver of aggressive Arctic whaling in the seventeenth and eighteenth centuries was the extraction of whale oil and fat for energy markets and industrial production throughout Western Europe (and, later and to a lesser extent, North America, Scandinavia, and Russia).231 Consumers (and subsequently municipal public utilities) throughout Europe used whale oil as a fuel for lamps, and manufacturers used it to make soap and candles, cure leather, or lubricate machinery in factories.232

Identifying primary and secondary sources recording key commercial accounting data (financing requirements, insurance costs, numbers of Arctic voyages, aggregate and per-vessel whale kills, and processed catch value) across time periods, national industries, and sub-regional Arctic hunting grounds, Richards provides a detailed country-by-country accounting of European industrial whaling in Arctic waters from the sixteenth through the nineteenth centuries.233 Venture capital, state sponsorship, and other sources of project finance were determined on the basis of expected average profit margins, which in turn was calculated according to variations on the following formula: revenues (i.e., number of sponsored expeditions times expected per-boatload whale kills and expected quantity of blubber, oil, and bone per whale at then-current market prices for these extracted and processed commodities) minus expenditures (i.e., ex ante capital investments plus lost ships plus additional expected ex post travel, delivery, and processing costs).234 The aggressive reach and successful output of the European whale oil industry—the evolving migration of whale hunting to new Arctic sub-regions

must stem from contractual agreements between free peoples who enjoy equal rights to the use of the seas).

229. See Richards, supra note 25, at 548 (“Even after three centuries of intense fishing, the great stocks of codfish seemed inexhaustible to the humans who preyed on them.”).
230. Id. at 585–86.
231. Id. at 575, 592, 694, 610.
232. Id.
233. Id. at 584–616.
234. Id. at 611–12. For examples of government subsidies utilized to entice British mariners to pursue whaling in the Arctic, see id. at 605–06.
following the depletion of over-exploited hunting grounds and the final extinction of Arctic bowhead stocks—resulted inexorably from the high average return on whaling investment over three centuries.\textsuperscript{235} 

The Basques were pioneers, the first Europeans to hunt and slaughter whales commercially in Arctic seas.\textsuperscript{236} They flensed each carcass in the closest harbor, then cooled, skimmed, strained, and poured the oil into wooden barrels.\textsuperscript{237} Returning to French and Spanish Basque Country, they sold these barrels to local wholesalers who in turn sold whale oil to retail apothecaries or textile and soap factories.\textsuperscript{238} Eventually British whalers sought to break the Basque whaling monopoly in northern seas. In 1613, the Muscovy company commissioned seven English ships (each sub-contracted with expert Basque harpoonists) to hunt whales off Spitsbergen, accompanied by the \textit{Tiger}, a 260-ton English flagship armed with twenty-one cannons.\textsuperscript{239} The \textit{Tiger}'s admiral and crew succeeded in intercepting and boarding seventeen competing ships, and expelling their Basque, French, and Dutch whalers from the area.\textsuperscript{240} 

Unhappy and angered to learn of the \textit{Tiger}'s exploits, Dutch whaling investors formed the \textit{Noordsche Compagnie} (North Company) as a corporate vehicle to fund a forceful counterpunch and to manage a monopoly on Arctic whale hunting they obtained from the Dutch States General. Returning to the Spitsbergen whaling grounds with eleven armed whaling vessels accompanied by three Dutch warships, the new chartered trading corporation harvested the Greenland bowhead stocks, succeeding in bringing in large catches and pushing the British whalers off to western bays. But the \textit{Noordsche Compagnie} also found itself embroiled in extensive disputes with English, Danish, and even other Dutch claimants.\textsuperscript{241} Avoiding a European whaling war, the standoff eventually resulted in a truce between Holland and the British and Danish monarchies and a commercial free-for-all in shared Arctic waters under the doctrine of

\textsuperscript{235}. \textit{Id.} at 610–11.

\textsuperscript{236}. \textit{Id.} at 585. “A [Basque] whaling galleon returning with whalebone and one thousand barrels of oil in the late sixteenth century could realize six thousand to twelve thousand or more ducats depending on conditions that year. \textit{Id.} at 588 (citing JEAN-PIERRE PROULX, CAN. PARKS SERV., BASQUE WHALING IN LABRADOR IN THE SIXTEENTH CENTURY 65–79 (1993)). Considering that “the average amount of insurance taken out on each ship (limited to ninety percent of value) in that period was between two thousand and twenty-five hundred ducats, the potential for profit among all concerned was considerable.” \textit{Id.} at 588. “[T]he price of a barrel of oil rose from six ducats in the 1560s to twelve to fifteen ducats in the 1590s.” \textit{Id.} at 588.

\textsuperscript{237}. \textit{Id.} at 587.

\textsuperscript{238}. \textit{Id.} at 588.

\textsuperscript{239}. \textit{Id.} at 592.

\textsuperscript{240}. \textit{Id.}

\textsuperscript{241}. \textit{Id.} at 593.
But the Basque, British, and Danish whalers were soon overtaken by the much larger and more aggressive Dutch and German industries. Arctic whaling, increasingly important to Holland’s economy, found a prominent place in Dutch high culture as well, portrayed in its own genre of paintings and engravings such as Adriaen van Salm’s late seventeenth century Whalers in the ice.

By the 1780s, however, as Greenland bowhead stocks rapidly declined, Dutch and German whaling profits plummeted. Even as the global industry collapsed, Britain, Denmark, and Sweden began to subsidize their respective national whaling fleets and tax imports of foreign whale oil in order to capture a greater share of diminishing whale-based commodities. The British government instituted a range of special trade and tax policies aimed to discourage domestic economic dependency on dwindling foreign sources. Meanwhile,
even as the quantity of its global production had long past reached peak levels, “whale oil became especially useful as a cheap fuel to light municipal street lamps, which, for the first time, were being introduced in British and European cities.”

To meet continued demand, the whale oil industry found new Arctic hunting grounds. Commercial hunting of bowhead whales in the North Pacific (and the Chukchi, Beaufort, and Bering Seas) did not fully commence until the mid-1800s, after Greenland stocks were nearly wiped out. But it only took two decades to reduce the western Arctic bowhead stocks by over sixty percent.

In 2006, economic historian Robert Allen and environmental economist Ian Keay published an empirical analysis of Dutch, British, German, and U.S. whaling vessel records to compile “a comprehensive harvest series” of all Bowhead whales taken in each year of Arctic commercial whaling in the eastern Arctic over three centuries. Assembled together, this data enabled Allen and Keay “to map out the pattern of decline in the Greenland-Spitzbergen eastern Arctic Bowhead whale population from its pristine level in 1611,” when “there were approximately 52,500 adult Bowhead whales resident in the waters between the east coast of Greenland and the island of Spitzbergen,” until 1911, when “there was no significant permanent population of Bowhead whales living in these waters.”

“We can identify 1911, the year a British whaling vessel spent an entire season off the east coast of Greenland and did not sight, much less land, a single Bowhead whale, as the date of ‘virtual extinction’ for this stock.” From this data, Allen and Keay reach two conclusions: first, that “the impact that human predation had on the eastern Arctic ecosystem must have been even more dramatic than previously reported”; and second, that the extermination of the

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248. Id. at 606 (internal citation omitted).
250. Mello, supra note 249. In 1991, the bowhead population off the coast of Alaska was estimated to be about 7,800 animals. Id. American Cetacean Society estimates that, “[a]t present, the number of bowhead whales of the Chukchi-Beaufort-Bering Sea is estimated to exceed 8,000 [and] those of the eastern Canadian Arctic and of the Okhostk Sea in far east Russia are in the hundreds.” American Cetacean Society Fact Sheet: Bowhead Whale, supra note 123.
252. Id. at 89–90.
253. Id. at 91.
Greenhead bowhead illustrates more generally “the impact that unfettered economic incentives may have on both species and industry sustainability.”

VI. SETTLER COLONIALISM

By the second decade of the eighteenth century, Dutch, German, English, Scottish, and Danish whalers had already been hunting bowheads off the Greenland coast for more than a hundred years—severely disrupting the sustenance economies of the Greenlandic Inuit (Kalaallit) communities who lived on coastal lands. Since the abandonment of the original Norse settlements around 1500, there had been no effort to conquer the Kalaallit’s territory—until July 3, 1721, when Norwegian clergyman Hans Egede arrived in Greenland to carry out the mission he had been given by the Danish king. Planting an official banner (embossed with the words “Christianity and Trade”), Egede formally proclaimed Denmark’s sovereignty over the world’s largest island (re-asserting the original Viking Norwegian–Danish claim). Greenland thus assumed legal and political status as a colony of Denmark, its indigenous peoples becoming colonial subjects of the Danish monarchy, with their economic and trade relations regulated by the Royal Greenland Trading Company and their communal lives administered by Danish government officials.

The aboriginal Sami nation that had long inhabited the Scandinavian far north and Russia’s Kola Peninsula had also been long subject to interventions by Norwegians, Swedes, Finns, and Russians. Like the native peoples of central and eastern Siberia, the Sami and other nearby peoples had been required to pay tribute in furs (and other goods) to colonial administrators. At that time, few if any ethnic Russians lived in the Tatar khanates and other feudal fiefdoms that claimed jurisdiction over Siberian lands where

254. Id. at 108.
255. Richards, supra note 25, at 613.
256. John J. Teal, Jr., Greenland and the World Around, 31 FOREIGN AFF. 128, 134 (describing the search for lost European colonists in Greenland centuries after their disappearance).
257. Id.
259. Chaturvedi, supra note 25, at 50.
260. Id. at 50.
indigenous peoples lived. By 1700, however, about 300,000 Russians had moved to Siberia: trappers, migrating north to participate in the bounty provided by the newly-annexed Siberian hunting grounds; soldiers, military officers, and state bureaucrats to formally assert and effectively maintain sovereign control; and peasants, merchants, and priests. Each played its own role to accomplish Moscow’s colonization policy. By 1800, 900,000 Russians inhabited the Siberian north; by 1850, an additional 1.8 million Russians had settled there.

In 1867, the Russians sold their Alaska colonies to the United States, but neither Moscow nor Washington consulted any of the indigenous nations who had lived in the region since time immemorial in this transaction. That same year, Canada became an official “Dominion” of the British Empire, and four years later (1871), the Canadian government purchased the vast Arctic lands (Rupert’s Land and the “North-Western Territory”) that had been previously held by the Hudson’s Bay Company.

Thus, by the late 1800s, Denmark, Sweden, Russia, Canada, and the United States had all asserted national sovereignty over northern Arctic lands without regard for the legitimate territorial and sovereignty claims of the regions’ aboriginal nations. In each case, the expansion of modern nation-state boundaries and power was backed up by an expanding influx of settlers who came north to administer frontier territories, mine the Arctic’s riches, and convert and “civilize” its native peoples.

A. Mineral Development

In southern Greenland, at some time between 1806 and 1814, German geologist Carl Ludwig Giesecke discovered cryolite, thus launching a century and a half of intensive, highly toxic mining operations there (until 1987, when the entire mineral stock had been extracted, and the mines abandoned).

261. Id. at 44.
262. Id.
263. Id. at 45.
264. Id. at 47–48.
When silver and copper ore were discovered in Sami territory (shortly after 1630), Swedish encroachments on indigenous populations intensified.266 “Besides causing border conflict [between Sweden and] Denmark,” writes Sanjay Chaturvedi, “the exploitation of the ore led to the abuse of the Sami as a labour force under harsh conditions. Those who chose to resist were severely punished.”267 In a 1937-1938 Foreign Affairs article entitled “The Scramble for Swedish Iron Ore,” Joachim Joesten writes: “Sweden’s outstanding rôle in the world iron ore market is due primarily to her immense mineral riches lying north of the Arctic Circle.”268 Joesten emphasizes that more than ninety percent of the high-percentage iron ore in Europe is found in Sweden’s Lapland,269 home to Sami communities and a grazing area for its reindeer herds.270 “The Lapland deposits are also unusually accessible. At Kiruna, for example, the ore is . . . simply stripped from the mountainside. About 750 million tons are thus available for easy extraction.”271

Most famously, in 1896, two brothers, members of the Tagish in Canada’s Yukon territory, made a discovery that upended the lives of indigenous peoples throughout the Canadian and Alaskan far north: at the Klondike River’s Bonanza Creek, Skookum Jim and Dawson Charlie struck gold.272 Territories long controlled by native peoples became inundated by foreign (mostly white) prospectors in massive numbers, staking claims against one another, killing the wildlife that had sustained indigenous communities, and forcing native peoples off traditional lands.273 “Twenty prospectors, protected by a US gunboat, met the Chilkoot chief Hole-in-the-Face,” recounts Canadian historian Keith Crowe, “and by firing a few blank rounds from a machine gun forced the Chilkoots to open their mountain pass to all comers.”274 With subsistence hunting economies shattered, aboriginal men survived by hiring themselves out to the miners as packers or by performing a wide variety of menial jobs at low

266. Chaturvedi, supra note 25, at 51.
267. Id.
269. Id.
271. Joesten, supra note 268, at 347.
272. Bone, supra note 6, at 63–64.
273. Id.
274. Id. at 65. “By 1898 the population of the Klondike had reached 40,000 with the majority of the new inhabitants in Dawson. The new town had saloons, a theatre, restaurant, shops and the Buxton Church of England Mission.” Tony Dawe, After the Gold Rush, Times (London), Jan. 24, 2009, http://www.timesonline.co.uk/tol/travel/related_features/discovering_canada/article5576829.ece.
wages. Meanwhile, concerned that American prospectors might set the stage for Washington to annex far North American territories, Ottawa dramatically beefed up northern migration of its own Crown officials and initiated a surge of new and enhanced North-West Mounted Police detachments to assert and enforce Canadian sovereignty over Arctic and sub-Arctic regions.

By the time gold was discovered in the Yukon, the U.S. government had promoted emigration and settlement in neighboring Alaska. After the Alaskan gold rush began, the mass infiltration of prospectors needed little official encouragement. In Alaska, as in the Canadian Arctic, “whites typically took control of land without paying any attention to whether the land was already used by natives.” This process continued without respite for decades after the 1896 gold rush had run its course. In a 1938-1939 Foreign Affairs article entitled “The American Far North,” polar adventurer Vilhjálmur Stefánsson writes: “Men of white skin have trespassed upon the Arctic more during the last twenty years than they did during the previous two hundred.”

He recalls that, fifty years earlier, Alaska’s “plain was inhabited by ten times as many Eskimos as now—perhaps even twenty times as many.” Stefánsson cites the 1937 Annual Report of the U.S. Secretary of the Interior: “More and more, a people which once was self-sufficient has become dependent upon external forces which are totally disregardful of their needs.”

However, just a few years later, in a 1940–1941 Foreign Affairs article entitled “Alaska, Outpost of American Defense,” William M. Franklin argues for intensified development of Alaska’s “vast undeveloped resources,” including “extensive reserves of gold, silver, platinum and coal, along with valuable deposits of lesser-known extent comprising tin, oil, lead, copper, antimony, zinc, iron and bismuth.” Franklin laments that “less than half the area of the Territory has been adequately surveyed for minerals.”

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275. Bone, supra note 6, at 63–64. The massive social dislocations triggered by the Tagish brothers’ mineral resource discovery evoke nightmarish consequences well known to indigenous societies (from the Amazon rainforest to the Niger Delta) whose land is bitterly cursed by the discovery of oil and gas. See John Vidal, Fight for Identity, Gulf Times (Qatar), June 15, 2009, at 2 (describing the global human rights emergency for indigenous people occupying lands with valuable natural resources).

276. Bone, supra note 6, at 63.

277. Id.

278. Banner, supra note 154, at 309.


280. Id. at 514.

281. Id. (quoting Harold L. Ickes, Secretary of the Interior).


283. Id.
“[s]upplies of timber, furs and fish (particularly salmon) are immense. Yet the total population inhabiting this vast and valuable region numbers slightly less than 60,000 souls, of whom only one-half belong to the white race.”

Across the Bering Strait, and throughout the Russian Arctic all the way to the Kara Sea, a new Bolshevik government generated enormous increases in Russian settlement, mining, and industrialization to extend Soviet power across all northern territories and exploit rich deposits in iron, copper, nickel, lead, zinc, iron ore, rare metals (including gold, chromium, wolfram, platinum, and, uranium—a mineral of increasing importance), and energy resources including coal, timber, hydropower, and, later, oil and gas. Among Siberia’s economic assets, Moscow especially targeted the region’s indigenous nations, identified as “the small peoples of the North.”

In 1920, the Kremlin established “the Committee of the Northern Sea Route” (Komseveroput or KSMP) to administer all Arctic territories, with northern gold-mining projects under the jurisdiction of the All-Union Trust of the Gold Industry (Soiuzzoloto). Assuming control of the Kremlin, Joseph Stalin made Arctic sovereignty an urgent strategic priority. Stalin sponsored Soviet expeditions to the North Pole, received Arctic explorers with ticker-tape parades on Red Square, and, above all, intensified efforts to exploit Siberia’s natural resources for Soviet national development. “The Arctic and our northern regions contain colossal wealth,” Stalin proclaimed. “We must create a Soviet organization which can, in the shortest period possible, include this wealth in the general resources of our socialist economic structure.”

Stalin’s Arctic organization—“the Main Administration of the Northern Sea Route”—was known as Glavevmorput (GUSMP). In a 1937–1938 Foreign Affairs article entitled “Soviet Strategy in the Arctic,” British journalist H. P. Smolka describes this new organization and its sovereign powers:

284. Id.
285. See, e.g., Bruce Hopper, Eastward the Course of Soviet Empire, 14 FOREIGN AFF. 37, 42 (1935) (hereinafter Hopper, Eastward) (noting that the Eastern Regions of the USSR hold an “astonishingly high proportion” of its natural resources); Bruce Hopper, The Soviet Conquest of the Far North, 14 FOREIGN AFF. 499, 503 (1935) (noting that the Yakutia is rich in natural resources); H.P. Smolka, Soviet Strategy in the Arctic, 16 FOREIGN AFF. 272, 276–77 (1938) (noting that the Norilsk mountains are an important source of coal, iron, and nickel deposits).
287. Id. at 23.
288. Id. at 33 (quoting Joseph Stalin).
289. Id.
290. Id. at 34.
It has an exclusive charter to develop all of the Union’s territory above the 62nd northern parallel, an area of 10 million square kilometers [i.e., roughly one quarter of the vast nation’s total land mass]. Everything in this region is under Glavsevmorput’s jurisdiction—transport by sea, river and air; industry; town building; reindeer breeding; wireless and meteorological services; native education; scientific study of the earth, the flora and fauna. . . . Last year Glavsevmorput had already spent an equivalent of $1,000,000,000 on its activities, while 40,000 men and women, a regular army of invasion against the Arctic, were on its payroll. Russians like to call this enterprise a modern socialist equivalent to the East India Company. Undoubtedly in scope and achievement it is the largest systematic pioneering organization in the world today.291

By 1937, as Glavsevmorput “reigned supreme in its Arctic kingdom,” the population of ethnic Russians in the North reached 1.4 million, many engaged in the mining of Siberia’s gold and other mineral deposits.292

In another *Foreign Affairs* article just two years before (“The Soviet Conquest of the Far North,” 1935–1936), Bruce Hopper had written: “In the matter of recruitment for service in the North, the Soviet Government has relied largely on volunteers, granting them special rewards and privileges.”293 Hopper cited various Kremlin decrees offering various financial inducements to Arctic and sub-Arctic settlement, and these no doubt provided incentives to Arctic migration.294 But Stalin always preferred sticks to carrots, and his regime was far more adept at offering the former. Like most Western observers of the time, Hopper ignored the far more influential source of Soviet “volunteer” labor in the Siberian north: the Gulag Archipelago.295 “Everybody knows of Auschwitz and Belsen,” writes Martin Amis, but “[n]obody knows of Vorkuta and Solovetsky,” Stalin’s brutal labor camp prisons in the Soviet Arctic.296 The “Stalin White Sea-Baltic Sea Canal,” for example, praised by Maxim Gorky as a triumphant achievement of Soviet engineering, was built entirely by prison slave labor; the canal workers were treated so brutally that

292. McCANNON, supra note 286, at 34, 37, 54.
294. Id. at 502–03.
295. Id. at 499–505.
296. MARTIN AMIS, KORA THE DREAD: LAUGHTER AND THE TWENTY MILLION 257 (2002). In Vorkuta, a coal-mining camp near the Pechora River, “the temperature is below zero Celsius for two-thirds of the year, and for more than 100 days the khanovey, or “wind of winds,” blows across the tundra.” ROBERT CONQUEST, THE GREAT TERROR: A REASSESSMENT 329–30 (40th Anniversary ed., Oxford Univ. Press 2007) (1990). Robert Conquest, perhaps the foremost historian of Stalin’s terror, notes that the Vorkuta “climate killed those from the southern parts of Russia very quickly; few would be alive after a year or two.” Id. at 310–11. This was also true for the prison population at Solovetsky. Id. at 329–30.
more than 100,000 (of a total force of 300,000 prisoners) might have perished during the construction period.297

Among the northern Siberian “penal empire,” the most horrible prison camps, including the mining complexes of Vorkuta and Norilsk, were controlled by the “Far Eastern Construction Trust,” or Dalstroi.298 The largest and cruellest of the Dalstroi camps was Kolyma; its slave laborers worked the far north Magadan gold mines twelve hours every day at a per annum productivity rate of 20,000 kilograms of gold and a per annum worker death rate of about 30 percent.299

Dalstroi’s Siberian gold-mining operations expanded through the 1930s to a network of more than one hundred camps.300 To service the prison and mining industries, by 1939 a “free” population of Russian settlers transformed Magadan from “a bleak, windswept outpost into a boontown of 70,000 free workers.”301 By that time, 2.4 million people filled Stalin’s labor camp system.302 In 1944, the Magadan and the Kolyma–Dalstroi gold mine were visited by Henry Wallace, Vice President of the United States, and Professor Owen Lattimore, representing the United States Office of War Information. Following the tour, Lattimore praised the “orderly” Soviet opening of the North and its administration “by a remarkable concern, the Dalstroi[,] . . . which can be roughly compared to a combination of the Hudson Bay Company and the T.V.A.”303

With the benefit of hindsight, however, as suggested by McCannon, we now understand that “the entire history of Stalinist development in the North is inextricably intertwined with the great human tragedy that was the GULAG.”304 Slave laborers built the Stalin Canal and the Baikal-Amur and Arctic railways, and they worked the Kolyma and Vorkuta mines, among many others.305 Across a Siberian Arctic territory “four times the size of France,” Dalstroi managed the production of approximately “one-fourth of the USSR’s entire gold yield: 74.5 of 320 tons,” raising the USSR’s share in global gold production from twenty-six to forty percent.306


298. Conquest, supra note 296, at 309, 324; McCannon, supra note 286, at 168, 172.

299. Conquest, supra note 296, at 327–28; McCannon, supra note 286, at 170.

300. McCannon, supra note 286, at 170.

301. Id.


304. McCannon, supra note 286, at 177.


306. McCannon, supra note 286, at 170, 172. Meanwhile, Siberian gold mining continues to the present day, especially as post-Soviet private investment has brought
B. Indigenous Cultural Eradication and Resilience

The [Iñupiac] greeting procedure used with Westerners during the first half of the 19th century was to lick one’s hands, draw them over one’s face and body, and then draw them over the stranger’s face and body. This was followed by an embrace and the rubbing of noses.

Ernest S. Burch, Jr., Alliance and Conflict: The World System of the Iñupiac Eskimos.\textsuperscript{307}

As the tens of thousands of ethnic Russians settled in Arctic lands, they “treated the native Siberians in much the same way that colonizers everywhere tend to treat indigenous peoples: they plied them with cheap alcohol, took liberties with the women, disparaged customs and rituals, and interfered with traditional livelihoods.”\textsuperscript{308} Russians made contracts with Nenets and Khanty traders and hunters, for example, but ignored and violated them at will.\textsuperscript{309}

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This is where mining began in Russia’s Far East. Stalin, needing bodies to unearth new-found gold reserves, sent hundreds of thousands of prisoners to slave in the region’s labour camps over two decades from the early 1930s. From such grisly beginnings, Magadan has developed into the hub of gold processing in the Russian Far East.

\textit{Id.} Today, gold bullion is processed at the Kolyma Refinery; “[f]rom here, 15 kg (33 pound) gold bars worth more than $450,000 each at current prices are delivered to Russian banks.” \textit{Id.}


\textsuperscript{308} McCannon, supra note 286, at 54.

\textsuperscript{309} Id.
Russian orthodox priests attempted to forcibly convert native peoples, and missionaries offered bribes to secure conversions.310 Yet Tsarist-era intrusions on indigenous cultural life paled by comparison to interference by officials and institutions of the new Soviet state in the name of socialist modernization. The USSR, launched by Lenin’s 1917 revolution, gained control of Siberia’s northern and eastern regions only after five years of civil war and colonial expansion. With a renewed strategic focus on the “sovietization” of the nation’s Arctic frontier, the Kremlin “expended huge efforts to seek out the remotest, tiniest communities and made them their ‘own’, svoy, a word which also implies making them less strange or alien. Soviet policy was moulded by an ideal of ‘mastery’ (osvoyeniye) of the North, a term that literally means ‘appropriation.’”311

Upon seizing Arctic and sub-Arctic regions under the Union’s sovereignty, the Soviets applied socialist collectivization polices to aboriginal societies inhabiting the land.312 Families that had previously depended on the herding of private reindeer stocks were deprived of their livelihoods as “almost every reindeer in Russia was confiscated and placed collectively in large herds run by the State as Collective (later State) Farms. Many who resisted were exiled or shot.”313 Native shepherds were drafted into one of thirteen Soviet regimental “reindeer brigades.”314 As recounted by Piers Vitebsky, a Western ethnographer who lived in Eveny/Evenki communities, “[t]he reindeer peoples across the country responded by abandoning their animals or eating them to prevent them from falling into State hands, and settled down to a grim test of endurance that lasted until the mid-1980s.”315 Nomadism, seen by the Soviets as a backward way of life, was thus “liquidated” as an economic and social category.316 “In the seven years from 1927 to 1934, nearly a million reindeer disappeared in Russia as their numbers fell from 2.2 to 1.4 million.”317

Unable to follow the migratory reindeer and thus no longer economically self-sufficient, Siberian herding peoples became dependent on government support. Organized into Soviet collectives combining multiple indigenous nationalities, traditional and social structures were eroded and self-governing political institutions eviscerated. Traditional shamans, among the only indigenous leaders

310. ARMSTRONG, supra note 92, at 115.
311. VITEBSKY, supra note 108, at 47.
312. Id. at 34.
313. Id.
314. Id. at 43–44.
315. Id. at 34–35.
316. Id. at 45.
317. Id. at 35.
who could potentially organize resistance to settlers or party officials, were targeted for re-education, exile, imprisonment, or execution.\textsuperscript{318} “The Soviet persecution of Siberian shamans was so thorough,” writes Vitebsky, “that almost no shamans of this old type exist anywhere today.”\textsuperscript{319}

Meanwhile, the Orthodox missionaries of the Tsarist period were replaced by communist missionaries who sought to rescue native peoples from the oppression of primitive, feudal tribalism.\textsuperscript{320} In the 1930s, \textit{Glavsevmorput} organized and funded campaigns of “Red Tent” volunteers to bring Bolshevism to the Russian Arctic’s native peoples.\textsuperscript{321} The Committee of the North converted indigenous peoples’ Latin-based alphabets to Cyrillic and prohibited the Communist Party publishing house to produce printed materials in Siberian native languages.\textsuperscript{322} In these efforts, \textit{Glavsevmorput} sought to achieve two objectives: “eradicating anything about the native way of life that could be seen as threatening to its authority and harnessing the productive capacity of the small peoples” for socialist development of the Russian North.\textsuperscript{323}

Modern colonists of the “capitalist” West were no more respectful of aboriginal peoples or cultures. By the time of the Klondike gold rush, Canadian indigenous nations had long been subject to the Crown’s sovereign authority and, specifically, to the colonial policy of cultural, social, and economic assimilation.\textsuperscript{324} By the mid-1700s, military authorities outlawed gift-giving, and subsequent legislation made it criminal for West Coast Inuits to hold traditional potlatch ceremonies.\textsuperscript{325} In 1830, the Secretary of State for the Colonies directed Crown officials “to overcome the ‘disposition in the Aboriginal inhabitants to cling to their original habits and mode of life.’”\textsuperscript{326} To achieve this civilizing objective, native communities were assigned to small tracts of land or “reserves” set aside in most cases by unilateral parliamentary acts under Crown authority.\textsuperscript{327} Initially, traditional indigenous authorities and decision-making processes

\textsuperscript{318} Id.
\textsuperscript{319} Id. at 261.
\textsuperscript{320} Id. at 34–35.
\textsuperscript{321} McCANNON, \textit{supra} note 286, at 52.
\textsuperscript{322} Id.
\textsuperscript{323} Id.
\textsuperscript{324} See BONE, \textit{supra} note 6, at 51–63 (describing the Crown’s cultural, social, and economic influence on the natives prior to the Kondike gold rush).
\textsuperscript{325} Mark D. Walters, \textit{Promise and Paradox: The Emergence of Indigenous Rights Law in Canada, in Indigenous Peoples and the Law: Comparative and Critical Perspectives} 21, 28, 32 (Benjamin J. Richardson, Shin Imai & Kent McNeil, eds., 2009). Walters indicates that criminal prohibition of potlatch ceremonies was only repealed in the contemporary era. \textit{Id.} at 32.
\textsuperscript{326} Id. at 31.
\textsuperscript{327} Id.
were maintained on the reserves, although “under the watchful eye of Indian department agents.”

The 1876 Indian Act formally codified and integrated what had previously been an ad hoc system of aboriginal reserves. After its passage, writes Mark Walters, Canadian officials “resorted to increasingly aggressive measures to ‘civilise’ Indians, the most intrusive being the Indian residential school system.”

The objective of ‘weaning’ Indians ‘from the habits and feelings of their ancestors’, it was concluded, required removing children ‘from the injurious influence of their homes’. From the late-19th century until the latter half of the 20th century, thousands of aboriginal children were separated from their families and sent to church-operated residential schools where conditions were often appalling, native languages and cultures were suppressed, and many students were subjected to physical and sexual abuse.

A century implementing Canada’s Native Schools policy “helped to create serious social problems within aboriginal communities,” concludes Walters, “but it did not result in assimilation.”

With the forced education of children in church schools, the spiritual front of the “weaning” process was also intensified, focusing on the aboriginal community itself—the family, home, and each individual soul. Since the period of initial contact with European fur traders, aboriginal communities encountered Christian missionaries who set up missions close to the fur posts. These priests and evangelicals had migrated to Northern lands to bring good news to the Arctic’s native peoples and save them, one by one: to persuade each man, woman, and child to perceive traditional practices as heathen and sinful in contravention of God’s wishes; to reject pagan, demonic shamanistic practices; to abandon animist deities and spirits, to accept and embrace Jesus Christ, and to worship the Father, Son, and Holy Ghost.

Sometimes the missionaries failed; sometimes they were too successful. In March 1930, an HBC trader from Leaf River, Northern Quebec, wrote to a local military officer informing him that “[t]he Natives around here are a bum crowd, [and] at the present time are

328. Id. at 31–32.
329. Id. at 32. Canadian anthropologist Evie Plaice refers to the “legacy of racist policies that had shaped Canadian Native relations since the birth of the Indian Act in 1876 and had in fact been copied by postwar South African apartheid.” Evie Plaice, Commentary, The Return of the Native, 44 CURRENT ANTHROPOLOGY 395, 396 (2003).
330. Walters, supra note 325, at 32.
331. Id. at 32 (citations omitted).
332. Id.
333. Bone, supra note 6, at 58.
334. Id. (noting that by the middle of the 19th century Anglican and Roman Catholic missionaries had established themselves in the North with their missionaries usually located near the fur posts).
335. Walters, supra note 325, at 32.
all crazy over religion. They are led by a fellow called Miller, [and] the antics all of them go through would qualify at least two thirds for the bug house.”336 Miller, an Inuk who had been recently converted to Christianity, now preached his own understanding of the gospels, conducted his own baptisms, and led the people of his community in a wide variety of theatrical rituals deemed by Canadian police to be insane. At one point, the district corporal returned to the village “in the nick of time” to save a woman from death by stoning as required by Miller’s reading of Biblical verse.337 In a Greenland case, Inequnareq (the Sweet One) declared that “she had given birth to Jesus and therefore,” unless she received all social and economic rights enjoyed by the Danes, the world would end.338 In 1920, some Quebec Inuit, following the miraculous death of a talking down-covered newborn baby, prepared for the arrival of Jesus by killing all of their dogs “in order to follow biblical prescriptions.”339 On the east coast of Hudson Bay, Qirturaaluk set out for Jerusalem by dogsled.340

In 1946, an Inuit of Pond Inlet, Arctic Bay, traveled to heaven where she met Jesus, then returned to bring her friends and neighbors to do the same; soon thereafter, according to the RCMP constable, “[s]pirits walked on the roof, various utensils in the igloo moved by themselves, and a number of new followers were enlisted.”341 The visionary woman, denounced by the local priest as “distinctly mental,” was identified to the community as ukpiluaqut, one of “those who believe too much”—a category resonant with each of the above cases.342 But each case also suggests a polyglot Arctic version of religious syncretism akin to what Vilhjálmur Stefansson called “Eskimoized Christianity,” whereby the Inuvialuit accepts Christian beliefs alongside his traditional spirit practices.343 “They have not ceased to have faith in the heathen things,” Stefansson writes, “but they have ceased to practice them because they are

336. Shelagh D. Grant, Religious Fanaticism at Leaf River, Ungava, 1931, 21 ÉTUDES INUIT [INUIT STUD.] 159, 167 (1997) (quoting HBC trader). Ethnographic research collected in the Canadian journal ÉTUDES INUIT [INUIT STUDIES] provides multidimensional thick descriptions of Inuit-missionary encounters and relationships at different historical moments across two centuries; the stories in this and the following paragraphs come from this rich source.

337. Id. at 177.


340. Id.

341. Id. at 218.

342. Id. 210, 216.

343. See VILHJÁLMUR STEFÁNSSON, MY LIFE WITH THE ESKIMO 415 (Macmillan Co. 1922) (1913) (defining “Eskimoized Christianity” as “Christianity comprehensible to the Eskimo”).
wicked and lessen one's chances of salvation.” Many Christians evangelicals were far less tolerant of animist legacies. Believing shamanism to be Satanic, missionaries dedicated themselves to a bitter, uncompromising struggle against the shamans themselves. Of great importance in these struggles was siqqitiq—the practice of announcing conversion from paganism to Christianity by the consumption of previously tabooed foods. But indigenous Arctic communities also witnessed struggles between missionaries of different denominations for their faith. For example, in September 1929 “two Anglican and two Roman Catholic missionaries arrived together on the Hudson Bay Company (HBC) supply boat at Pond Inlet.” From that day on, “these missionaries competed ruthlessly for the souls of the Inuit, traveling over long distances to meet the Inuit in their camps.” While “the Anglicans soon had the upper hand[,] . . . the Catholic missionaries tried to outflank the Anglicans,” apparently failing in the end.

C. Demographic Data

But indigenous cultural resilience could only go so far. In the end, biological threats proved far graver—across nearly all aboriginal nations in the Arctic—than spiritual assimilation efforts, compulsory residential education, forced family separation, gift-giving prohibitions, potlatch criminalization, the exile or killing of shamans, and even evictions from sacred lands. The indigenous peoples of the Arctic survived these onslaughts and continue to survive today, although with much smaller numbers and greater impoverishment than would have been the case had European colonization never occurred. What decimated their societies were disease (epidemics of

344. Id. at 425.
345. Trott, supra note 339, at 222.
346. Id. at 213.
347. Id. This competition did not arise out of the blue. Edmund Peck had been the first Anglican priest to arrive at Baffin Island in 1894; translating the New Testament into Eastern Arctic Inuktitut, he was well received by local communities. APOSTLE TO THE INUIT: THE JOURNALS AND ETHNOGRAPHIC NOTES OF EDMUND JAMES PECK, THE BAFFIN YEARS, 1894–1905, at 3, 5, 7 (Frédéric Laugrand et al. eds., 2006). This did not please the Catholic Oblate order, which promptly established a competing mission at Chesterfield Inlet, thus triggering “an intense competition between these two forces” in an atmosphere of “uncompromising hostility.” Trott, supra note 339, at 213. The Anglicans moved to establish another mission; then the Catholics did the same, until the fateful 1929 boat trip. Id.
348. Trott, supra note 339, at 213.
349. Id., at 213–14
350. Walters, supra note 325, at 26–28, 32–33.
smallpox, typhus, scarlet fever, and other infectious diseases brought to them by European traders, missionaries, and settlers) and starvation (occurring in cycles of famine and malnutrition exacerbated by the collapse of subsistence economies and the depletion of traditional food sources).  

Moving across Siberia from west to east, smallpox epidemics between 1630 and 1660 killed four-fifths of the Tungus and Yakut people.  

“Russians seized and enslaved women to provide sex and domestic services for the male invaders.” The spread of venereal disease (called “the Russian disease” by Siberian natives) “sharply reduced fertility and sent indigenous populations into decline.” Measles and alcoholism further battered native communities. But smallpox was the greatest cause of mass death among indigenous peoples. According to the 1744 diary of Heinrich von Fuchs (“a political exile with extended experience among the Yakut and Tungus peoples of northeastern Siberia”), “when they are stricken with smallpox they die like flies.” Returning roughly every twenty or thirty years, smallpox epidemics decimated aboriginal populations throughout northern lands. Death rates regularly reached fifty percent of affected aboriginal communities.

The depopulation of indigenous Alaskan, Canadian Arctic, and Greenlandic nations followed roughly the same pattern. The best accounting comes from Russell Thornton (drawing in part on James Mooney’s earlier data). In Alaska, before contact, there were

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352. Richards, supra note 25, at 538.
353. Id. at 524.
354. Id. at 538.
355. Id.
356. Id.
357. Id. at 540 (quoting BASIL DMYTRYSHYN, ET AL., RUSSIA’S CONQUEST OF SIBERIA, 1558–1700: A DOCUMENTARY RECORD 170 (N. Pac. Studies Series No. 9, 1985)). When men and women died, surviving family members were forced by Tsarist administrators to pay the iasak that had been assigned to them. Id. “I personally knew several wealthy Iakuts who had to pay for four or five of their dead relatives,” von Fuchs recalls. Id. “They were so impoverished that before I left they had to forfeit all their livestock and horses, and sometimes even their wives and children [to the Russian officials]. Some of them hang or drown themselves.” Id.
358. Id. at 538 (“The native Siberian population did not disappear, in spite of Russian brutality and the ravages of smallpox and other diseases.”). Richards cites records of a higher total native Siberian population in 1790 as compared to re-conquest estimates (303,395 as compared to 227,000); however, he suggests that “[p]art of the increase may be accounted for by the inclusion of a growing number of mixed-race, Russian-indigenous persons counted as Siberians by officials.” Id. at 541.
359. Thornton, supra note 351, at 241 (citing James Mooney, The Aboriginal Population of America North of Mexico, in 80 SMITHSONIAN MISCELLANEOUS COLLECTIONS 1, 80–33 (John R. Swanton ed., 1928)).
approximately 72,600 aboriginal people (including 16,000 Aleuts, 6,600 Athapascons, and 10,000 members of Tlingit tribes). After only twenty years of interaction with Russian traders, the Aleut population was reduced by one-half. By the mid-1830s, smallpox epidemics had further reduced the population to one-quarter of the original size.\(^{360}\) Eskimo tribes farther north “were not greatly disturbed until about 1848 when the whalers began to frequent the arctic coasts, introducing whiskey and disease, and destroying the native food supply.”\(^{361}\) By the end of the nineteenth century, the total Alaskan native population had been reduced to 28,310.\(^{362}\)

In Canada, Thornton and Mooney estimate an original indigenous population totaling approximately 221,000 adults.\(^{363}\) By the end of the nineteenth century, this population had been reduced to approximately 101,000 (rising again to 108,261 by 1911).\(^{364}\) The Canadian aboriginal depopulation can be explained by a variety of causes, each linked to the arrival of the Europeans: the use of newly acquired guns against neighboring tribes; measles; alcoholism; recurrent famines; patterns of starvation; influenza epidemics (in 1834, 1837–1838, and 1843), a particularly vicious epidemic of scarlatina in 1865 (estimated to have killed one out of four indigenous people in the lower Mackenzie region); and a wide range of other European-based infectious diseases to which indigenous peoples became exposed.\(^{365}\)

As in Siberia, the worst killer in the Western Arctic was smallpox (with particularly lethal epidemics in 1616–1620, 1636–1639, 1670, 1755, 1781–1782, 1837–1838, 1852–1853, 1862, and 1870–1871).\(^{366}\) In total, how many people in the region were killed as a result of European contact? We know from whaling records the precise number of bowheads killed (38,000 in the Davis Strait alone, for example); however, as Barry Lopez observes, “[t]here are no similar figures for the number of native people in the region who fell victim to diphtheria, smallpox, tuberculosis, poliomyelitis, and other diseases—historians have suggested that 90 percent of the indigenous population of North America is not an unreasonable figure.”\(^{367}\) Here Thornton and Mooney’s more conservative numbers—suggesting

\(^{360}\) Id.
\(^{361}\) Id. “The interior (Athapascan) tribes have probably suffered less in proportion, but have been reduced by epidemics of smallpox and fever, usually entering from the coast.” Id.
\(^{362}\) Id. at 242.
\(^{363}\) Id.
\(^{364}\) Id. at 242–43.
\(^{365}\) Id. at 243–44.
\(^{366}\) Id. at 241–44.
\(^{367}\) LOPEZ, supra note 3, at 10.
aboriginal populations cut down by half—are more precise and reliable, and they are large enough.\footnote{368}

VII. \textbf{ULTIMA THULE}

“The Arctic is to us what the Mediterranean was to the Greeks and Romans, the center of the world.”

\footnote{369 U.S. Air Force Colonel Bernt Balchen, Ret.}

The Cold War initiated a new, terrible epoch in global environmental history, from which the world has not recovered. The Arctic is at the epicenter of that history—ground (sea, ice, and permafrost) zero. I use the word “terrible” (from the Latin \textit{terribilis}, “to frighten”) in all dimensions of its meaning: harrowing; evoking fear, awe, and dread; formidable; and very bad (i.e., as we use the word to remember Russia’s Tsar Ivan IV, 1530–1584, whose military conquest of Siberia evoked comparable associations).

From the establishment of the North Atlantic Treaty Organization (NATO) in 1949 until the present day, buried silos in Arctic lands have held nuclear-tipped missiles ready to launch on alert across polar trajectories; air force and naval bases have housed nuclear-armed planes and pilots ready to carry nuclear weapons on the short polar flight to designated targets; and the Arctic Sea itself, including the dark silent realms beneath the polar ice, has been the dominion of nuclear submarines from each adversary, heightening deterrence capacity by maintaining post-attack survivability for a punishing second strike.

A. \textit{The 1941 Greenland Treaty}

The U.S. acquisition of Alaska from Russia was the brainchild of Secretary of State William Seward, an enthusiastic proponent of American territorial expansion.\footnote{370 Gruening, \textit{supra} note 13, at 378.} Americans who opposed the plan (why waste treasury dollars on a barren northern wasteland?) called the new territory “Seward’s Folly.”\footnote{371 \textit{Id.} The price was $7,200,000 (approximately two cents per acre). \textit{Id.}} As we well know, Seward proved to be a visionary, as demonstrated by the enormous return on

\footnote{368 THORNTON, \textit{supra} note 351, at 241–44.}
\footnote{370 Gruening, \textit{supra} note 13, at 378.}
\footnote{371 \textit{Id.} The price was $7,200,000 (approximately two cents per acre). \textit{Id.}}
the taxpayer’s investment. However, we might not remember that Seward’s Arctic vision did not stop at Alaska. For Seward, the realization of American manifest destiny required U.S. sovereignty over Greenland as well. Control over Greenland, asserted by application of the Monroe Doctrine, “would give the U.S. influence in the North Atlantic in the same way that the purchase of Alaska in 1867 bought influence in the North Pacific.” The Pennsylvania-born Arctic explorer Robert Peary supported Seward’s Greenland policy, arguing further that the U.S. should reject all Danish claims on the ground that the vast island already belonged to the United States.

Seward and Peary did not succeed in their efforts, at least not directly. Eventually, though, the White House, the Pentagon, Foggy Bottom, and Capitol Hill came to share Seward and Peary’s vision, as the strategic objective of enhanced U.S. political influence and military power in the North Atlantic became increasingly seen as legitimate, necessary, and urgent.

On April 9, 1941, in Washington, D.C., Danish Ambassador to the United States Henrik Kauffmann (“acting on behalf of His Majesty the King of Denmark in His capacity as sovereign of Greenland”) and U.S. Secretary of State Cordell Hull (“acting on behalf of the United States of America”) signed an “Agreement Relating to the Defense of Greenland,” known as “The Greenland Treaty.” The date of treaty execution was no coincidence. Precisely one year earlier, on April 9, 1940, the Nazis invaded and occupied Denmark. Notwithstanding difficult questions about the treaty’s legal validity, it effectively recognized a quid pro quo deal: Washington would recognize Copenhagen’s sovereignty over Greenland in exchange for U.S. rights to license and use Greenland territories to establish military bases (over which the U.S. would...
maintain “exclusive jurisdiction”) and conduct military operations as it may wish.\(^{379}\)

The backdrop for the Greenland Treaty was Danish powerlessness against the Nazi juggernaut. But the strategic importance of the treaty did not become evident until soon after the downfall of the Wehrmacht and Hitler’s regime, when a new confrontation began.\(^{380}\) In this rapidly emerging war of containment and deterrence against the Soviet Union, Washington and Copenhagen were again allies with a relationship of dramatically unequal military strength.\(^{381}\) In this context, and with the emergency of the North Atlantic Treaty Organization, the Greenland Treaty quickly became the framework for the exercise of U.S. military power in the region, and, more importantly, for the implementation of its nuclear deterrent warfighting strategy.

**B. The Last Kings of Thule**

In 1950–1951, French anthropologist Jean Malaurie lived among the Thule Inuit (“the Polar Eskimos of the Thule district in northern Greenland”), an “exemplary,” “modest and proud” people who taught Malaurie “that a man’s life should be a constant challenge that enables him to become what he truly is.”\(^{382}\) Maintaining a subsistence hunting economy in an isolated harsh Arctic environment, the Thule Eskimos had long kept apart from the Danish (and even Inuit) inhabitants of southern Greenland’s villages and emerging market towns.\(^{383}\) In 1950, their entire population consisted of 302 human beings, including approximately 70 hunters who provided animals for the community to eat and prepare furs for sale on the world market.\(^{384}\)

By coincidence of fate, Malaurie lived with the Thule Inuit at the precise moment when their lives were irrecoverably changed by the

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379. Id. at 507.
380. See TAAGHOLT & HANSEN, supra note 374, at 27–28 (discussing U.S. and Danish interests in Greenland after World War II).
381. See id. (noting the concern of the United States to prevent the Soviet Union from securing control of Greenland and the shift in Danish security policy from neutrality to membership in NATO).
382. MALAURIE, supra note 5, at xv–xvi.
383. Id. at 119.
384. Id. at 119–20.

Seventy-odd hunters in this isolated society of Polar Eskimos supplied, ad valorem, around $23,000 on the world fur market, or $330 per hunter per year. In return, however, this group received an average yearly income of only a little more than $12 per hunter, out of which had to be deducted the cost and depreciation of materials and tools (wood and thwarts for sledges, rifles, cartridges) and overall production costs.

Id.
sudden, unexpected arrival of U.S. officials, soldiers, and technicians into the region, an encounter captured in Malaurie’s ethnographic memoir of his life with these people, *Les derniers rois de Thulé*. \(^{385}\)

“Thousands and thousands of Americans,” Uutaaq [an old Inuit man] said in his hoarse voice. “Amerlaqaat, you lose track of how many. They come down from the sky every day. There’s the atomic bomb, too. . . . We’ve been here a thousand years, we Inuit. We always thought Thule was an important place on the earth. . . .” \(^{386}\)

Malaurie soon confirmed the rumors. \(^{387}\) Meeting with suspicious Air Force commanders (who were, as one might imagine, extremely surprised to see an educated Frenchman amidst the local natives), Malaurie was briefed about the previously top secret *Operation Blue Jay*. \(^{388}\) At an annual cost in an amount of “more than double Denmark’s expenditures for the whole of Greenland since 1721,” the U.S. had just launched “what was said to be the biggest military enterprise since the Allied landings in Normandy.” \(^{389}\) It transformed “a valley three miles wide and nine miles long, at one end terminated by a glacier, and at the other end closed off by the sea,” an expanse of tundra “frozen nine months out of twelve,” into “the Strategic Air Command’s most powerful atomic base.” \(^{390}\) It was a massive, self-contained American city of bombers, gigantic trans-Arctic radar systems, water and power utilities, sports facilities, entertainment centers, and other amenities to help make Arctic-stationed servicemen feel at home. \(^{391}\)

In sum, it was a polar atomic metropolis of gargantuan size and capacity, but a simple name, *Thule AFB*. \(^{392}\) And so it remains today. \(^{393}\)

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\(^{385}\) Id. at 383–95.

\(^{386}\) Id. at 384.

\(^{387}\) Id. at 388.

\(^{388}\) Id. at 388–89.

\(^{389}\) Id.

\(^{390}\) Id.

\(^{391}\) Id. at 389. Some examples of projects either envisioned or under way include:

- the movie theater; the electric system and its generating station; the telephone system . . . a restaurant; an ultramodern hospital; the largest distillery of sea water in the world (at first water had been taken from beneath a nearby lake, which had soon gone dry); a model laundry, a tunnel beneath the ice cap; pillboxes in the ice, and a library.

\(^{392}\) Id. at 384.

\(^{393}\) Id. at 384.

\(^{394}\) Id. at 388.

\(^{395}\) Id. at 388–89.

\(^{396}\) Id.

\(^{397}\) Id.

\(^{398}\) Id. at 389. Some examples of projects either envisioned or under way include:

- the movie theater; the electric system and its generating station; the telephone system . . . a restaurant; an ultramodern hospital; the largest distillery of sea water in the world (at first water had been taken from beneath a nearby lake, which had soon gone dry); a model laundry, a tunnel beneath the ice cap; pillboxes in the ice, and a library.

\(^{399}\) Id. at 384.

\(^{400}\) Id. at 384.

\(^{401}\) Id. at 388.

\(^{402}\) Id. at 388–89.

\(^{403}\) Id.

\(^{404}\) Id.

\(^{405}\) Id. at 389. Some examples of projects either envisioned or under way include:

- the movie theater; the electric system and its generating station; the telephone system . . . a restaurant; an ultramodern hospital; the largest distillery of sea water in the world (at first water had been taken from beneath a nearby lake, which had soon gone dry); a model laundry, a tunnel beneath the ice cap; pillboxes in the ice, and a library.

\(^{406}\) Id.

\(^{407}\) See Hayton, *supra* note 369, at 748 (1958) (describing the valuable, “huge Thule AFB”). While the legal basis of the Thule AFB lease and construction follows the 1941 Greenland Treaty, it was approved by a further Soviet-directed “common defense” agreement between Copenhagen and Washington dated April 27, 1951. *Id.* at 748 n.8.

\(^{408}\) Thule AFB has been reassigned from the Strategic Air Command to the U.S. Air Force Space Command. *TAIGHOLT & HANSEN, supra* note 374, at 57. According to the Thule AFB website, “Air Force Space Command, created Sept. 1, 1982, is a major command headquartered at Peterson Air Force Base, Colo. AFSPC defends
In 1953, pursuant to the construction of the Thule AFB and its security perimeter, the Thule Inuit among whom Malaurie had lived were evicted from their homes and hunting grounds (although they received more cash than they had ever before seen in their lives). They were resettled by the Danish government in a forced relocation noted by a simple public statement: a 1954 announcement by the Denmark’s Minister of Greenland that “the Polar Eskimos had decided to move 125 miles to the north to Qaanart, on the edge of the Murchison Strait.”

C. Nuclear Trajectories

Why Thule, and why the enormous scale? The answer follows naturally from the specific geographical, technical, and mathematic challenge the United States and its NATO allies sought to address. According to Danish security scholars Jorgen Taagholt and Jens Claus Hansen, “[t]he United States had a requirement for base facilities that would make it possible to carry out strategic bombing missions inside the Soviet Union with only one airborne refueling per mission.”

Actually, this problem had previously been solved. In an essay in the 1958 American Journal of International Law, Robert Hayden North America through its space and intercontinental ballistic missile operations—vital force elements in projecting global reach and global power.” Thule Air Base, Welcome, http://www.thule.af.mil/main/welcome.asp (last visited Oct. 4, 2009). In turn, [t]he [AFSPC’s] ICBM force consists of Minuteman III missiles that provide the critical component of America’s on-alert strategic forces. As the nation’s ‘silent sentinels,’ ICBMs, and the people who operate them, have remained on continuous, around-the-clock alert since 1959 - longer than any other U.S. strategic force. More than 500 ICBMs are currently on alert in reinforced concrete launch facilities beneath the Great Plains.

Id. The website identifies Thule AFB as the home of the 821st Air Base Group of the U.S. Air Force, and sets out the mission of each. Id. “The mission of the United States Air Force is to fly, fight and win . . . in air, space and cyberspace.” Id. “The mission of the 821st Air Base Group is to effect space superiority through Air Force Core Values-based installation operations and protection. The group operates and maintains Thule Air Base in support of missile warning and space surveillance and satellite command and control operations missions.” Id. Today, Thule AFB is also the home of the 12th Space Warning Squadron, which “operates the Ballistic Missile Early Warning System—Site I (BMEWS).” Thule Air Base, 12th Space Warning Squadron, http://www.thule.af.mil/library/factsheets/factsheet.asp?id=4886 (last visited Oct. 4, 2009). “BMEWS is an AN/FPS-120, two-sided, solid-state, phased-array radar system (SSPARS) used to perform multiple missions. The primary mission of BMEWS Site I is to provide early warning of Intercontinental Ballistic Missile (ICBM) and Sea Launched Ballistic Missile (SLBM) attacks against the continental United States and Canada.” Id.

394. MALAURIE, supra note 5, at 395; see also TAAGHOLT & HANSEN, supra note 374, at 34–35 (discussing the forced relocation).

395. TAAGHOLT & HANSEN, supra note 374, at 32.
comments on the strategic rationale for the recent Congressional approval of Alaskan statehood.\footnote{396}{Hayton, \textit{supra} note 369, at 746.} Noting that the Alaska Command was activated January 1, 1947, at the birth of the Cold War, Hayton recalls that the Army’s Alaskan “Arctic School” has already “trained hundreds for service under the harsh circumstances of the region.”\footnote{397}{\textit{Id.}} But Alaska’s greatest importance corresponds to its unique proximity to Siberia across the Bering Strait (i.e., the 56-mile line on the earth’s surface where aboriginal peoples once walked from Siberia to North America).\footnote{398}{John J. Teal, \textit{Alaska, Fulcrum of Power, supra} note 373, at 86.} Twelve thousand years later, “in less than twenty seconds a plane of either side can transit the five-mile patch of water between Little Diomede Island (U.S.) and Big Diomede Island (USSR).”\footnote{399}{Hayton, \textit{supra} note 369, at 747.}

Of course no one in Washington or Moscow had any interest in bombing either of the Diomedes, on which only a small population of Inupiat Eskimos resided. Hayton’s point was a much bigger one: both Soviet and American nuclear strategy required that warhead payloads on land-based missiles and air command bombers be delivered across the shortest distance possible.\footnote{400}{See \textit{id} at 746–47 (discussing the possibility of flight across the Arctic).} Thus, “anyone today not conversant with ‘the Polar concept’ is out of touch with long-range aerial navigation and political geography, not to mention modern weapons systems.”\footnote{401}{\textit{Id.}} The logic of the globe’s shape, and the absence of any Arctic buffer zone remotely equivalent to the Atlantic Ocean, required that nuclear targeting follow the map. However, this in turn increases the dangers and risks of nuclear attack:

\begin{quote}

Polar deployment of missile striking forces converts present intermediate-range ballistic missiles into actual intercontinental missiles because of the reduced distance. The time between launching from an Arctic base to arrival on target, say in the United States, is less than thirty minutes.\footnote{402}{\textit{Id.}}

\end{quote}

Thus, “[s]ince strategists estimate that an attack on the United States by the Soviet Union would most likely be launched across the Arctic, North Polar defense measures . . . have been given high priority by the Joint Chiefs of Staff out of sheer military necessity.”\footnote{403}{\textit{Id.}} Such “defense measures” included the U.S.–Canada joint “Distant early warning line” (the DEW line), an extensive circumpolar system of “radar stations placed every thirty miles from Alaska to Iceland at about latitude 63°,” an engineering feat of comparable immensity to

\begin{footnotes}

\footnote{396}{Hayton, \textit{supra} note 369, at 746.}
\footnote{397}{\textit{Id.}}
\footnote{398}{John J. Teal, \textit{Alaska, Fulcrum of Power, supra} note 373, at 86.}
\footnote{399}{Hayton, \textit{supra} note 369, at 747.}
\footnote{400}{See \textit{id} at 746–47 (discussing the possibility of flight across the Arctic).}
\footnote{401}{\textit{Id.}}
\footnote{402}{\textit{Id.} at 749.}
\footnote{403}{\textit{Id.} at 747.}
\end{footnotes}
the construction of Thule AFB. But in nuclear war deterrence planning, the certainty of mass-obliteration by nuclear weapon attack blurred the line between defensive and offensive measures and still does.

This explains the strategic location of the Thule base. Equipped with the Army’s most advanced telecommunications technologies (including “a radio tower higher than the Eiffel Tower” and perhaps the largest and most powerful detection radar systems in the world), Thule AFB enabled the U.S. Strategic Command to receive sufficiently early warning of incoming transpolar nuclear attack and then to take necessary action within short flight paths to large Soviet targets. As explained by geographer Trevor Lloyd in another contemporary commentary, the DEW system “will provide defenders with possibly 15 minutes warning of the arrival of missiles and will

404. MALAURIE, supra note 5, at 463. The American engineer Lloyd Berkner described the purposes of the DEW in a 1953 speech:

“If we can economically exploit the thousands of miles between the distant warning line and our target system, we can acquire real advantage. We can track the enemy to assess his probable intentions and the composition of his forces. We can break up formations over the sea or uninhabited land wastes with atomic weapons.”

Lloyd Berkner, Science and Military Power, Remarks at the National Conference of Editorial Writers (Oct. 17, 1953), cited in Matthew Farish, Frontier Engineering: From the Globe to the Body in the Cold War Arctic, 50 CAN. GEOGRAPHER 177, 184 (2006). Farish notes: “Rarely mentioned were the repercussions these scenarios would have for the people who had already made the north their home; one commentator went so far as to suggest that Arctic war, admirably, promised ‘no devastated cities, no ruined civilizations, no millions of starving refugees and displaced persons.’” Farish, supra, at 184 (quoting P.H.H. Bryan, War in the Arctic, 1948 ARMY Q. 56, 102). The successful construction of the DEW line, a joint Canadian-U.S. project, “was an extraordinary feat of geographical engineering, planned and sequenced in minute detail. As a Canadian journalist put it, the finished product was ‘a monument to the ingenuity and hardihood of the North American human being.’” Id. at 186 (quoting Ralph Allen, Will Dewline Cost Canada Its Northland?, MACLEAN’S, May 26, 1956, at 17).

405. See, e.g., McGeorGe Bundy, Danger and Survival: Choices About the Bomb in the First Fifty Years 565 (1988) (describing President Carter’s strategy of deterring Soviet attack by publicizing the destructive capabilities of American offensive weapons, such as the Poseidon submarine).

406. MALAURIE, supra note 5, at 389. (“England, Germany, and much of the territory of the Soviet Union are equidistant from it [Thule] and within easy flying range.”). The strategic logic of the Thule base was outlined at the very outset of the Cold War by John J. Teal in the 1948–49 volume of FOREIGN AFFAIRS: “[a]ir warfare has in the last seven years exercised the illusion of American isolation and shattered the traditional concept of oceanic security.” Teal, Alaska, Fulcrum of Power, supra note 373, at 90. “Security’ now has meaning primarily in relation to defense against northern or trans-polar attack.” Id. From this perspective, “[a] base in the extreme north of Greenland would bring Moscow, Berlin and London within an identical 2,400-mile range. At the same time, an air base in this glacier-free part of Greenland could be coordinated with Alaskan fortifications only 1,700 miles away to intercept attacks from any possible enemy.” Id.
permit deterrent, presumably offensive, forces to attack targets on the Soviet side of the pole.”

The Thule bombers would be informed, able, and ready to enter the picture. “From Thule to Moscow is a mere 2,800 miles, little more than the airline distance from New York to San Francisco, while Chicago is only about 500 miles more from the nearest Soviet arctic base.” Even by 1958, “[m]issiles (which do not of course need to return home) already exist[ed] which can reach their targets by using the great circle routes across the polar basis.”

The official purpose of keeping bombers in the air and missiles aimed and ready for delivery is deterrence. But accidents and mistakes happen, even at the height of nuclear confrontation. On Saturday, October 27, 1962, four nail-biting days into the Cuban Missile Crisis, President Kennedy and his ExComm advisors received a report that a U.S. U-2 spy plane from a SAC base in Alaska, presumably on a “routine air-sampling mission” to check on nuclear testing, had accidentally strayed into Soviet air space. MiGs scrambled to intercept, but no shots were fired, and the plane returned to base escorted by U.S. fighters equipped with nuclear air-to-air missiles.” [U.S. Secretary of Defense Robert] McNamara reportedly shouted when informed, “This means war with the Soviet Union!”

On January 21, 1968, one of the worst nuclear accidents of the Cold War occurred at the Thule base. As an official 1986 report on “DoD nuclear mishaps” prepared by the U.S. Defense Nuclear Agency documents, a B-52 “crashed and burned approximately 7 miles southwest of the runway at Thule AB, Greenland, while approaching the base to land.” The plane blew up into flames, killing one of the crew members. “The bomber carried four nuclear weapons, all of which were destroyed by the fire,” dumping radioactive contamination of “an unknown amount” on the sea ice. A four-month clean-up operation ensued, leading to the removal of some

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409. Id. at 46.
410. Id.
411. See Robert G. Joseph, Nuclear, Biological and Chemical Deterrence and Defense, in AIR/MISSILE DEFENSE, COUNTERPROLIFERATION, AND SECURITY POLICY PLANNING 39, 42 (Jacqueline K. Davis et al. eds., 1999) (discussing the theories underlying deterrence and the threat of retaliation as its “central element”); e.g., supra note 405 and accompanying text (discussing deterrence strategy).
414. Id.
415. Id.
416. Id.
“237,000 cubic feet of contaminated ice, snow, water, and crash debris.”

D. A Private Sea

“Control of the seas is a primary mission of the U.S. Navy,” explains Vice Admiral John H. Nicholson, USN (Ret.) in 1999.

“Most seas can be controlled by combinations of ships, submarines, and aircraft, but the ice-covered Arctic can only be controlled by nuclear submarines.”

For this reason Dr. Waldo Lyon, the leading architect of U.S. nuclear submarine policy from the late 1950s to the mid-1970s, could with confidence reflect: “The Arctic Ocean is the submariner’s private sea. Hence, his sole capability to exploit and control.”

In this context, the U.S. Navy is now planning for the possibility of inter-fleet and fleet-to-mainland, nuclear-missile warfare in Arctic waters.... Nuclear submarines passing under the ice from either side may approach to within several hundred miles of vital targets while still submerged in sub-Arctic waters (for example, Hudson’s Bay) and discharge Polaris-type missiles with devastating effect.

In an effort to fight off domestic critics of his supposed weakness on nuclear defense issues, President Carter in 1979 made it clear exactly what kind of effect was being suggested, stating that the nuclear weapons on just one of the many Poseidon submarines the U.S. maintained in operation under the Arctic Sea (or other waters) at any given moment day or night had the capacity to “destroy every large- and medium-sized city in the Soviet Union.”

But there was a problem: The Soviets arrived at the same conclusions for the same reasons. The Soviet Navy also shared the same primary mission, comparable technology to enable sustained travel below the surface of the frozen Arctic Sea, and a roughly equivalent capacity to inflict mass destruction. Hence, the “security dilemma” of the Arctic Sea led to an unceasing game of cat and mouse below the polar ice. “Warfare in the ice is like jungle
warfare,” Lyon emphasized.425 “The sea-ice canopy becomes the jungle in which the submarine must live, work, and fight—not just transit.”426

The central role played by the Arctic submarines in the nuclear triad of each adversary’s arsenal relates to the extreme difficulty in achieving a first-strike against the hidden subs in the vast under-ice waters.427 The “survivability” of these subs meant that they could respond to any nuclear attack carried out by bombers, ICBMs, or other submarines belonging to the other side.428 In the case of the Soviets, to ensure that a responding attack would succeed even if a primary strike had wiped out land-based command and control centers in the Soviet Union, nuclear submarine commanders deep underwater had authority to make the final decision to launch nuclear weapons.429

This in turn led scientists on each side to pursue heroic efforts to improve the capacity of nuclear submarines to detect, track, target, and attack submarines of the other side.430 Adm. Kinnard McKee put it simply, in Congressional testimony: “There is nothing that can work against a submarine under the ice except another submarine.”431 On this basis, President Ronald Reagan initiated a new Maritime Strategy, under which “U.S. carrier battle groups, preceded and accompanied by some fifty attack submarines, would be sent into the Norwegian Sea.”432 If this show of force failed to deter a Soviet response, chief of naval operations Admiral James Watkins announced, “[W]e will wage an aggressive campaign against all Soviet submarines, including ballistic missile submarines.”433

Actually, however, there were in fact other things that could work against an under-ice submarine: disaster, fire, insanity, the unimaginable pressures of living for long periods confined in such an isolated, cramped, and inhuman environment, accidents of one kind or another, a myriad of life-threatening hazards under the ice, and

425. Id. at 256.
426. Id.
427. See supra note 424 and accompanying text.
428. See generally Leary, supra note 418 (detailing the development of submarines capable of functioning in the icy arctic, detecting and carrying out first strikes against enemy subs, and adequately responding to attack).
430. See, e.g., Leary, supra note 418, at 255–56 (discussing the U.S. Nuclear Propulsion Program’s effort to make such improvements to 688-class submarines, including enhanced sonar and communication devices).
431. Id. at 255.
432. Id. at 254–55.
433. Id. at 255.
the ice itself. On July 4, 1961, for example, a nuclear melt-down on the Soviet submarine K-19 boiled its crew members in extreme levels of radiation. On April 10, 1963, the USS nuclear submarine Thresher fell below crush-depth, killing all 129 sailors on board. On August 12, 2000, Kursk, Russia’s super-submarine, exploded and sank in the Barents Sea outside the city of Murmansk, killing 118 Russian sailors and officers.

Meanwhile, the Soviets used Arctic waters and lands as private nuclear testing grounds and dumping basins. Between 1955 and 1990, the Soviets detonated 132 nuclear bombs at the Arctic Sea archipelago of Novaya Zemlya. According to the Norwegian Bellona Foundation in a 2001 report on “The Arctic Nuclear Challenge,” “the combined explosive force of the 132 bombs tested at Novaya Zemlya is 470 megatons of TNT, or 94% of the combined explosive force of all 715 Soviet nuclear detonations.” Moreover, “[s]ince 1959, the [Soviet] Northern Fleet has dumped radioactive waste into the Barents Sea and Kara Sea on a regular basis. All kind of radioactive waste is dumped, including solid radioactive waste, liquid radioactive waste, and nuclear reactors with and without fuel.” In addition, “[t]he overhanging danger of accidents and radioactive leakage from laid-up [Soviet-era] nuclear power submarines and run-down storage sites for spent nuclear fuel and radioactive waste increases from year to year.”

E. A Nuclear-Free Arctic?

In April 1958, the United States made a proposal to the Soviet Union calling for a nuclear weapons “inspection system covering all the area within the Arctic Circle together with a sector in the North Pacific region extending east as far as the 140° W. meridian, west as far as the 160° E. meridian and south to the line of 50° N. latitude,”

439. Id. ch. 4, § 2.
440. Id.
441. Id.
442. Id. ch. 1.
plus “the remainder of Kamchatka and the islands extending south of it toward Japan.” Arguably, the U.S. had offered to establish a “nuclear weapons free zone” in the entire circumpolar region, in partnership with the Soviet Union, with mutual inspection as the enforcement mechanism. Amazingly, the American offer covered U.S. nuclear bases in Alaska and, most importantly, the Thule base in Greenland. Why did the U.S. offer to open its core strategic Arctic bases to Soviet inspections? One explanation may have related to the far more expansive Russian Arctic nuclear capability, compared to the United States; this same reason may best explain why the USSR rejected the American offer.

Or perhaps, in an era of larger UN disarmament proposals, the U.S. truly understood that the grave dangers and catastrophic risks of the nascent atomic age could be far more effectively managed by agreement than by treating the Arctic as a vast nuclear frontier. UN Secretary Dag Hammarskjöld broke the precedent of Cold War “neutrality” to endorse the U.S. proposal, and he was right to do so, even in the face of Soviet claims to Cold War partisanship. We know now that Stalin was at that time determined to keep up with U.S. thermonuclear weapons advances and deployments at all costs.

But on October 1, 1987, the USSR made a stunning about-face. In his most important speech on Arctic issues, given in Murmansk...

444. See id. at 48 (“In effect it takes the example of Spitsbergen—which is already demilitarized—and extends it to all arctic areas.”).
445. Id.
446. In 1955, President Eisenhower launched the “Open Skies” initiative to enable mutual aerial observation between the United States and the Soviet Union. Eisenhower’s “open skies” vision remained unrealized until after the collapse of the Soviet Union. On January 1, 2002, with the entry into force of The Treaty on Open Skies, the United States and the Russian Federation joined among thirty-four States Parties in a regime of unarmed aerial observation flights over the territory of each member state. See http://www.state.gov/t/vci/trty/102337.htm. This treaty enables observation flights over territories in the Alaskan and Siberian Arctic, thereby addressing in part concerns underlying Eisenhower’s 1958 Arctic initiative, Open Skies Treaty, U.S. Department of State, Bureau of Verification, Compliance, and Implementation Fact Sheet, May 18, 2009, http://www.state.gov/t/vci/rls/123551.htm, but presumably with a much less rigorous and comprehensive nuclear weapons inspection system for the Arctic region specifically than that envisioned by Eisenhower’s 1958 proposal.
448. See Lloyd, supra note 408, at 47.
449. See generally Joseph Cirincione, A Brief History of the Nuclear Age, GLOBALIST, Dec. 13, 2005, http://www.theglobalist.com/StoryId.aspx?StoryId=4968 (noting that after Hiroshima, Stalin told his scientists to “[b]uild the bomb – it will remove the great danger from us” launching the start of the nuclear arms race.).
(“the capital of the Soviet Polar Region”), Secretary General Mikhail Gorbachev decried the U.S. and NATO militarization of the Arctic, including the testing of U.S. cruise missiles; the operationalization of a new “star wars” radar station at the Thule AFB; the expansion of U.S. and NATO military activity “in areas adjoining the Soviet Polar Region.” In response, reversing the core principles that had shaped Soviet Arctic security policy since the end of World War II, Gorbachev called for “a radical lowering of the level of military confrontation in the region. Let the north of the globe, the Arctic, become a zone of peace.” Specifically, Gorbachev called for the establishment of “a nuclear-free zone in northern Europe.”

If such a decision were adopted, the Soviet Union, as has already been declared, the Soviet Union, as has already been declared, would be prepared to act as guarantor. It would depend on the participating countries how to formalize this guarantee; by multilateral or bilateral agreements, governmental statements or in some other way ... We would go so far as to remove submarines equipped with ballistic missiles from the Soviet Baltic Fleet.

Gorbachev went even further, declaring the USSR’s endorsement of “the initiative of Finland’s President Mauno Koivisto on restricting naval activity in the seas washing the shores of northern Europe.” He called for a wide variety of path-breaking measures: to limit “rivalry in anti-submarine weapons”; to ensure “notification of large naval and airforce exercises”; to invite representatives from all countries to participate as observers; to negotiate prohibitions on “naval activities in mutually agreed-upon zones of international straits and in intensive shipping lanes in general”; and to promote urgently-needed intensive transnational cooperation in Arctic ecosystem protection, including conservation of Arctic forests, tundra and marine environments.

This time, however, it was the United States (and its NATO allies) that declined the disarmament and nuclear threat reduction offer. They cited a familiar litany of enforcement and verification issues; they questioned the effectiveness of a regional approach; and they expressed concern that a Northern European nuclear weapons-


451. Id.

452. Id. at 307–08.

453. Id. at 308.

454. Id. at 308–09. Ronald Purver called the package of proposals set out in Gorbachev’s Murmansk speech “no less than a revolution” in Soviet Arctic policies.” Kristian Atland, Mikhail Gorbachev, the Murmansk Initiative, and the Desecuritization of Interstate Relations in the Arctic, 43 COOPERATION AND CONFLICT 289, 290 (2008) (quoting Ronald Purver, Arctic Security: The Murmansk Initiative and Its Impact, 11 CURRENT RES. ON PEACE & VIOLENCE 147, 148 (1988)).
free zone could be “destabilizing for other regions.”

In the atmosphere of Cold War hostility and distrust, Gorbachev’s northern Europe nuclear free-zone initiative was greeted by its NATO audience with what social psychologist Lee Ross has called “reactive devaluation” (i.e., “the fact that the very offer of a particular proposal or concession—especially if it comes from an adversary—may diminish its apparent value or attractiveness in the eyes of the recipient”).

Likewise, Gorbachev’s related proposals to constrain each side’s naval activities and demilitarize northern seas “were largely perceived in the West as ‘intended to produce a unilateral Soviet advantage.’” In the end, Gorbachev’s Murmansk initiative fell by the wayside of history, like the proposals exchanged at the U.S.–Soviet summit a few months earlier in Reykjavik, Iceland (October 11–12, 1986), when Gorbachev and U.S. President Ronald Reagan came excruciatingly close to reaching an agreement to eliminate all strategic offensive nuclear weapons in each nation’s respective arsenal within ten years.

455. Atland, supra note 454, at 297 (quoting Joe Clark, Cooperation Crucial to Northern Development, 1988 DISARMAMENT BULL. 22, 24 (Can.)). Moreover, Atland notes that “Gorbachev’s nuclear weapons-free zone proposal did not include the whole or parts of the Arctic Ocean. For the Soviet Union, as well as for the United States, this was still an important arena for strategic submarine operations, and neither of the two countries had plans for withdrawing their nuclear submarines from the Arctic theatre.” Id. at 298.


457. Atland, supra note 454, at 299 (quoting Dan Hayward, Gorbachev’s Murmansk Initiative: New Prospects for Arms Control in the Arctic?, 16 N. PERSP. 9, 11 (1989)).

The Russian Federation and the United States have significantly reduced their nuclear arsenals since the height of the Cold War. But, thermonuclear weapons are so extraordinarily lethal that each nation still retains sufficient capacity to obliterate the other many times over. Russia and the United States both maintain land-based intercontinental ballistic missiles (ICBMs), submarine-launched and submarine ballistic missiles (SLBMs), and bombers targeting each other's nation from beneath the Arctic Sea or across Arctic skies—all of which are ready to launch at a minute's notice or less. The U.S. nuclear base at Thule remains in full operation; so
do equivalent Russian bases throughout the Siberian Arctic and its northern ports. Each nation’s bombers remain at ready alert, and SLBMs still carry nuclear weapons under the Arctic ice.

On March 20, 1993, the USS Graying, a nuclear attack submarine collided into the Russian submarine it had been tracking.

Strategic Arms Reduction Treaty (START), the clock was set back to 17 minutes to midnight. Id. The clock’s current position (set in 2007 as “the world stands at the brink of a second nuclear age”) is 5 minutes to midnight. Id.

462. Russian Bombers Continue Routine Patrols over Atlantic, Arctic, NOVOSTI, July 5, 2009, http://en.rian.ru/russia/20090507/155004802.html. “In early 2009, the head of the Russian ICBM force, Col. Gen. Nikolai Solovtsov, said ‘[a]t least 96 percent of all missile systems are ready for deployment within several dozen seconds,’ and that this is ‘the highest readiness level’ within Russia’s nuclear triad.” Norris & Kristensen, Nuclear Notebook: Russian Nuclear Forces, 2009, supra note 460, at 56 (quoting Russia Can Launch ICBM’s at Minute’s Notice – Missile Force Chief, NOVOSTI, Feb. 11, 2009). Note, however, that Norris and Kristensen cite U.S. sources estimating that “no more than 75–80 percent of these missile systems are at this readiness level.” Id.

463. See Willy Ostreng, The Geostrategic Conditions of Deterrence in the Barents Sea, in THE SOVIET MARITIME ARCTIC, supra note 450 at 201 (stating that by the mid to late 1980s, the Soviet’s Arctic-based (Kola peninsula) Northern Fleet possessed two-thirds of the USSR’s nuclear-ballistic-missile submarines (42 out of a total of 63), two-thirds of its submarine-launched ballistic missiles (624/928), 76 percent of its warheads (2,208/2,896), and 73 percent of the total mega-tonnage (818/1,114)). According to Taagholt’s and Hansen’s 2001 report, “[e]ven though disarmament has brought about a significant reduction in nuclear weapons, the number of nuclear weapons on the Kola Peninsula is almost the same.” TAAGHOLT & HANSEN, supra note 374, at 66. Today, “Russian submarines still regularly hide beneath the thick Arctic ice cover to avoid U.S. detection. They then stage surprise sudden ascents to practice launching the nuclear missiles they carry.” Jim Hoagland, Preparing for a Sea Change, WASH. POST, July 5, 2009, at A19, available at http://www.washingtonpost.com/wp-dyn/content/article/2009/07/03/AR2009070301125.html.

Despite all-out warship and submarine cutbacks [after the collapse of the Soviet Union and the end of the Cold War], the Northern Fleet still packs a more devastating punch than any other Russian fleet. It operates Russia’s only aircraft carrier, the world’s only nuclear-powered guided missile cruiser and the largest destroyer and anti-submarine warfare (ASW) ship units. The fleet still relies heavily on its nuclear-powered submarines, most of which are being regularly overhauled. Six Project 667 BDRM Delta IV Delfin ballistic missile submarines form the mainstay of Russia’s strategic naval nuclear force. Most of the submarines have been equipped with upgraded Sineva submarine-launched ballistic missiles (SLBMs) and will remain in service for another 15–20 years. The Northern Fleet remains on active combat duty, as long as these submarines sail beneath the ice all the way to the North Pole... from where their missiles can reach 90% of the world’s main economic centers.

Northern Fleet Protecting Russian Arctic, NOVOSTI, Feb. 6, 2009, http://en.rian.ru/analysis/20090602/155147701.html; see also Igod Kudrick, Seems Like Russian Multi Purpose Subs Carry Nuclear Weapons, BELLONA, Sept. 15, 2006, http://www.bellona.org/weblog/1158346729.29 (explaining that in October 1991, Soviet President Gorbachev and U.S. President George H. W. Bush agreed to eliminate tactical (non-strategic) nuclear weapons from submarines and ships in each country’s arsenal; however, the nuclear watchdog Bellona Foundation quoted a report from Russian Defense Minister Sergey Ivanov to Russian President Vladimir Putin stating that “[p]er [September 10, 2006] there are five strategic [sic] and three multi purpose submarines on combat patrol, but each of them carries nuclear weapon[s].”)

in Arctic waters. According to Gerard DeGroot, “[t]he Grayling was following a practice established in the 1980s designed to enable, in the event of war, a sizable naval attack on the Soviet Union’s Arctic bases, in order to relieve pressure on NATO forces in Central Europe.” But this was two years after the collapse of the Soviet Union had officially ended the Cold War. De Groot asks: “Why had the tactic survived, if tensions had supposedly eased?”

Unfortunately, in the subsequent years, NATO–Russian tensions have increased. A competitive Arctic oil “gold rush” has been threatened. Denmark, Norway, and Canada have each recently

465. Id.
466. Id.
467. See Per Stig Møller, Foreign Minister, Den., Address to NATO Foreign Ministers on Arctic Security Measures (Dec. 5, 2006), available at http://www.fmn.dk/Ministeren/Taler%20og%20artikler/Documents/2006/From_ice_to_fire.pdf (addressing a conference of NATO Foreign Ministers on Arctic Security Issues (“From Ice to Fire”). The Danish Foreign Minister noted: “[i]n Greenland, the Thule-base contributes to defence against intercontinental missiles. The increasing danger posed by these weapons was once again acknowledged as late as last week at the NATO-summit in Riga.” Id. at 4; see also Andrew Chung, The Arctic Cold War, Toronto Star, Aug. 12, 2007, http://www.thestar.com/sciencetech/Ideas/article/2454440 (discussing how to determine what law governs Arctic sovereignty and claims to territory in the wake of Russia’s claim to the North Pole seabed); Tony Halpin, Kremlın Takes Stand on Arctic Borders, Times (London), Sept. 14, 2008, at 38, available at http://www.timesonline.co.uk/tol/news/world/europe/article4773567.ece (noting that Russian President Dimitry Medvedev called on his security chiefs to establish a formal Russian border in the Arctic: “[w]e must wrap up all the formalities for drawing the external border in the continental shelf. This is our direct responsibility to future generations”); Bronwen Maddox, Kremlın Carries on Playing James Bond Theme, Times (London), May 14, 2009, at 35, available at http://www.timesonline.co.uk/tol/comment/columnists/bronwen_maddox/article6283108.ece (analogizing Russian “stunts” to lay claim to Arctic territory similar to James Bond; simplifying complex issues of international law and Arctic sovereignty into a “climatic race” for territory); Tim Reid, Arctic Military Bases Signal New Cold War, Times (London), Aug. 12, 2007, at 39, available at http://www.timesonline.co.uk/tol/news/world/us_and_americas/article2238243.ece (noting that a week after Russia controversially laid claim to the North Pole by “flag planting” to secure lucrative Arctic gas and oil reserves, Canada announced its intentions to establish two military bases in the region and beef up its military presence); Barry Wigmore, Polar War Could Break Out in 12 Years, Daily Mail (London), Sept. 25, 2008, http://www.dailymail.co.uk/news/worldnews/article-1061216/Polar-war-break-12-years-scramble-oil-gas-British-think-tank warns.html (noting a British Think Tank Report warning that with the melting of the ice caps, easier access to oil and gas reserves underneath the Arctic could trigger a “polar war” by 2020; Russia sees the Arctic as a way to regain superpower status).
announced major new defense initiatives in their northern regions. In sum, the militarization of the circumpolar region has been re-invigorated.  

RIA Novosti reports, for example, that “Russia carried 6925853.stm (stating that with the planting of the Russian flag in the North Pole to assert domain over Arctic territory, Russia is leading the way over other Arctic countries in claiming oil, gas, and mineral rights in the region).


The United States has broad and fundamental national security interests in the Arctic region and is prepared to operate either independently or in conjunction with other states to safeguard these interests. These interests include such matters as missile defense and early warning, deployment of sea and air systems for strategic sealift, strategic deterrence . . . .

Id. The operationalization of “strategic deterrence” is not discussed further, nor is the Arctic deployment of missile defense systems, a policy that has been strongly opposed by the Russian Federation. Id; see also Jaap de Hoop Scheffer, Sec’y Gen., NATO, Security Prospects of the High North, Address to Reykjavik, Iceland NATO Meeting (Jan. 29, 2009), available at http://www.nato.int/docu/speech/2009/s090129a.html (“Responding to the changing environment, several Arctic Rim countries are strengthening their capabilities, and military activity in the High North region has been steadily increasing.”).

[Canadian] Coast Guard ships and land forces will participate in Operation Nanook throughout most of August . . . . Denmark plans to create an Arctic command to co-ordinate military activity in the area, which would include the use of aircraft to assert sovereignty . . . . Next April, Russia plans to drop paratroopers at the North Pole. In mid-July, two Russian submarines surfaced through ice near the North Pole and fired long-range missiles in a NORAD-monitored test. Reportedly, the Northern Fleet accounts for two-thirds of Russia’s navy. The Kremlin has stepped up patrol flights over the Arctic by giant Bear bombers and Russian President Dmitry Medvedev has said the Arctic must serve as Russia’s resource base in coming years. Russia also recently countered U.S. war exercises in Alaska with submarine drills under the Arctic ice cap. Russian officials have said the region around the North Pole is an ideal site for the launch of ballistic missiles because it allows submarines to arrive in the launch area undetected and shortens missile flight time to target . . . . In June, Sweden held its largest northern military exercise since the end of World War II. About 12,000 troops, 50 aircraft and several warships were involved in a NATO operation. The Swedes have also raised the possibility of forming a northern security alliance with Finland, Denmark, Iceland and Norway . . . . Last year, Norway purchased 48 Lockheed F-35 fighter jets . . . partly because of their suitability for Arctic patrols. Last March, Norway participated in a major NATO Arctic military practice involving 7,000 soldiers from 13 countries in which a fictional country called Northland seized offshore oilrigs. The exercise prompted a protest from Russia. In June, Norway moved its military command to the north of the country . . . . Last August, the (United States) Coast Guard’s top official spoke
out test launches of two Sineva intercontinental ballistic missiles from two Delta IV class nuclear-powered submarines, located near the North Pole, on July 13-14 [2009].

In this context, Washington should dust off its 1958 nuclear weapons inspection proposal, revisit Gorbachev’s Murmansk initiatives, and consider putting similar, updated offers on the table.

VIII. ARCTIC HISTORY ACROSS THE LONGUE DURÉE

This Article has, in condensed form, identified epochs of circumpolar history, geological and human, summarized below. It has argued that the Arctic has never existed at the margins or periphery of world environmental history but at its heart. It has identified as a primary theme or motif the dramatic tension between nunavut and Ultima Thule, a recurring conflict played out in different forms throughout centuries and across polar nations and states.

A. To the Mid-Twentieth Century

Sixty-five million years ago (65 mya), at the start of the earth’s Cenozoic Era, there was no sea ice in the Arctic Ocean, nor was there a Greenland ice sheet. For the last thirteen to fourteen million years, sea ice has covered at least part of the Arctic Ocean. Between two and three million years ago (approximately 2.7 mya), extensive continental ice sheets began to develop over the North American and Eurasian Arctic, thus initiating the Quaternary ice

of a planned shift from “scientific research” to “security” and “sovereignty” in the area . . . . The Pentagon also recently held its Northern Edge war games in Alaska, involving more than 9,000 troops, warships and warplanes in simulated air combat.


Cf. Dmitry Medvedev, President of Russ., Address to German Government Leaders (June 8, 2009), available at http://www.norway.mid.ru/news_fp/news_fp_87_eng.html (calling for the negotiation of a new security treaty for “the Euro-Atlantic community”). Perhaps NATO member states (and NATO as an organization) can find a way to respond positively to President Medvedev’s Berlin overture with an initial focus on issues of common concern previously identified by Soviet Secretary General Gorbachev at Murmansk and by President Eisenhower in his 1958 open skies proposal. Id.


Id. at 5.
ages, including our own Holocene period. For the past million years or more, “permanent” year-round ice sheets have covered large portions of the Arctic Sea and Greenland.

For the past twenty thousand years, since modern human beings first arrived, the Arctic has been a focal point, trigger, and bridge for global human migration and the homeland of all indigenous peoples throughout the Americas.

For the past eleven thousand years, the settlement and habitation of Arctic lands by diverse indigenous peoples—and the use by these communities of the region’s animals, plants, and marine resources—has been defined by sustainable economic, social, and cultural development.

For the past millennium (1000 to 2000), the physical and human environment of the Arctic has been shaped, defined, and exploited by European-based explorers, traders, and settlers thoroughly integrated with the international economic system. Arctic history of the past thousand years has been defined primarily by such interaction.

Ivan Illich once described modern world history as “five hundred years of warfare that has been waged by the modern State against all forms of Subsistence.” Modern Arctic history tells stories of this war played out in the earth’s most northern lands.

British historian Robert Young writes that “[t]he assumption of postcolonial studies is that many of the wrongs, if not crimes, against humanity are a product of the economic dominance of the north over the south.” That may be a fair assumption, or fair enough, but not in the Arctic, as we have seen. In Arctic history, everything is upside down. “North” is south, and “south” is north—at least it has been that way for the past five or six centuries, until the present era.

B. The Past Sixty Years

Nothing has changed, as we have witnessed:

(1) continued expansion by each Arctic littoral nation-state of sovereignty, territorial control, legal jurisdiction, and

475. Id. at 3, 481.
476. Id. at 484; see also J.T. Overpeck et al., Arctic System on Trajectory to New, Seasonally Ice-Free State, 86 EOS 309, 310 (2005) (“A summer ice-free Arctic Ocean within a century is a real possibility, a state not witnessed for at least a million years.”).
military activity throughout all remaining northern frontier territories.\footnote{480}
(2) identification of new sites, deposits, and forms of valuable natural resources in areas of expanded sovereign control; the investment of private and public capital; and the application of current engineering technologies, to extract the resource for sale on world commodity markets until the resource is depleted\(^{481}\).

(3) continued encroachments on the traditional cultural and economic sustainability practices of surviving aboriginal peoples, and resulting widespread impoverishment\(^{482}\); and

\(^{481}\) Robert Bone demonstrates that the recurrence in the contemporary Arctic of “resource boom-and-bust cycles” (especially in the exploitation of a wide variety of northern mineral deposits including lead, gold, zinc, diamonds) is reminiscent of the Yukon gold rush and other past patterns “characterized by a rapid increase in economic activity followed by an inevitable collapse.” Bone, supra note 6, at 105–10, 120–23. Bone also documents the emergence of an Arctic “era of megaprojects” beginning in the second half of the twentieth century and continuing today. Id. at 137–38. Completed megaprojects include the construction and operation of giant hydroelectric production sites (La Grande and Churchill/Nelson), major new coal and diamond mining enterprises, the Alberta oil sands open-pit mines, and the Alliance Gas Pipeline, but many more projects are in the process of construction. See generally id. at 134–57 (“Megaprojects in Northern Development”). Of these projects, the largest and most ambitious seek to exploit, process and transport Arctic reserves of petroleum (including oil and natural gas) and other hydrocarbons (including oil and tar sands). Id. at 123–26, 146–55. Regarding hydrocarbons located beneath the melting ice of the Arctic Sea, the United States Geological Survey has (by now, famously) estimated that the Arctic may hold as much as one quarter of the world’s undiscovered hydrocarbon resources, and Russian sources have estimated potential resources between five and ten billion tones of fuel equivalent. See, e.g., Tavis Potts and Clive Scholfield, Current Legal Developments in the Arctic, 23 INT’L J. MARINE & COASTAL L. 151, 154 n.18 (2008) (describing official and unofficial Russian estimates of fuel equivalent in the Arctic). The most comprehensive assessment to date of Arctic petroleum hydrocarbon resources and current and potential oil and gas exploration and development activities in the region is the Arctic Council’s Arctic Oil and Gas 2007 report. ARCTIC COUNCIL’S ARCTIC MONITORING AND ASSESSMENT PROGRAMME, ARCTIC OIL AND GAS 2007, available at http://www.amap.no/workdocs/index.cfm?action=getfile&dirsub=%2FPGA%20Overview%20Report&filename=FINAL%20OOGA%20OVERVIEW%20%20%20ALL%20%202004008.pdf&CFID=2772&CFTOKEN=11FF6494-7EDC-E372-A30157F1660C2FD&sort=default. The Executive Summary of this report states: “[t]he importance of oil and gas development to the economy of the Arctic means that, with the possible exception of climate change, this activity will pose the most significant challenges to balancing resource development, socio-cultural effects, and environmental protection in the Arctic in the next few decades.” Id. at v. For a discussion on the impact of arctic oil and gas development on aboriginal peoples in Alaska, Canada (Yukon and Alberta), Greenland, and Russia (Western Siberia, Eastern Siberia, and Chitinskaya Province), see the special edition of INDIGENOUS AFF., Jan.–Feb. 2008.

\(^{482}\) See Inuit Tapiriit Kanatami, Inuit Statistical Profiles 9 (2008), available at http://www.itk.ca/sites/default/files/InuitStatisticalProfile2008_0.pdf (noting the unemployment rates for Inuit men (aged 25–64) across Canada is 23 percent, as compared to five percent of non-Inuit Canadian men). The median income for Inuit adults is much lower than for all Canadians ($13,699 compared to $22,120) while the cost of living for Inuit is much higher (for example, the total cost of a five pound bag of potatoes, one liter of two percent milk, one pound of ground beef and two and a half kilograms of white flour is $31.22 in Clyde River, Nunavut compared to
(4) the continued deterioration of Arctic wildlife biodiversity (both flora and fauna), the contamination of the natural ecosystems throughout the circumpolar region, and the extremely harmful impact of environmental degradation and persistent organic pollutant accumulation on the region’s aboriginal peoples. 483

§9.37 in Montreal). Id. at 10. In terms of health indices, the Inuit suicide rate is more than eleven times higher than the overall Canadian rate; the infant mortality rate is about four times higher. Id. Lung cancer death rates for Canadian Inuit are the highest in the world. Id. at 5–6. One source states that for Canada’s Inuit peoples, the tuberculosis rate almost 23 times higher than the rate for all Canadians, id. at 4, while another source (published by the same Inuit organization) states that “[t]he Inuit TB rate is 90 times the rate as the rest of the Canadian population,” INUIT TAPIRIIT KANATAMI, 2008–2009 ANNUAL REPORT 7 (2009), available at http://www.itk.ca/publications/2008-2009-annual-report [hereinafter ITK Annual Report]. According to the ITK Annual Report:

[s]ome of the key social determinants of health that affect people’s susceptibility to TB include poor housing, overcrowding, lack of education, chronic unemployment and poor nutrition. A shortage of housing in our Inuit communities is causing overcrowding. Poverty is also a serious issue in most of our communities. According to Statistics Canada, Inuit are nearly eight times more likely than non-Aboriginal people to live in overcrowded homes.

Id. at 7. The GRID-Arendal Vital Arctic Graphics (note that GRID-Arendal is a UNEP affiliate organization) presents comparable statistics concerning aboriginal poverty, poor health, infant mortality and exposure to contamination throughout the Arctic region. GRID-ARENAL, supra note 78.

483. See Rachel Kirby, Persistent Organic Pollutant Accumulation in the Arctic, 8 SUSTAINABLE DEV. L. & POLY 31 (2008) (discussing the effects of Persistent Organic Pollutants (POPs) on humans and animals in the arctic); GRID-ARENAL, supra note 78, at 22 (describing the high risk of exposure to dangerous levels of POPs); id. at 23 (describing the high mercury levels in the blood of Arctic peoples). A variety of Persistent Organic Pollutants (POPs) contaminate the waters, flora, wildlife and human inhabitants of the Arctic region including DDT, PCBs (polychlorinated biphenyl), a chemical used in electrical equipment), and Endrin (a chemical used for insect, bird, and rodent control) and a variety of heavy metals such as lead and mercury. Sarah R. Hamilton, Note, Toxic Contamination of the Arctic: Thinking Globally and Acting Locally to Protect Arctic Ecosystems and People, 15 COLO. J. INT’L ENVTL. L. & POLY 71, 75–77 (2004). Most of these contaminants are deposited in the Arctic from remote locations via air currents, ocean currents, and river flow. Id. Upon their arrival in the Arctic, the contaminants do not tend to dissipate, rather, they stay preserved in the cold climate for years. David Tenenbaum, Northern Overexposure, 106 EVNTL. HEALTH PERSP. A64, para. 12 (1998), available at http://www.ehponline.org/qa/106-2focus/focus.html. Moreover, POPs “bioaccumulate” (i.e., become preserved in Arctic animal and plant life cycles); in turn, Arctic aboriginal peoples eat land and marine mammals and sea birds with high levels of POPs in their fatty tissues. Olav Schram Stokke, A Legal Regime for the Arctic? Interplay with the Law of the Sea Convention, 31 MARINE POLY 402, 404 (2007). As a result, “[t]he Inuit of Canada and Greenland have among the highest exposures to PCB and mercury measured on the planet. Fetuses and infants relying on breast milk are particularly vulnerable.” Id. Arctic populations are actually exposed to five times more radiation than people in temperate areas. Hamilton, supra, at 79 (citing ARCTIC MONITORING AND ASSESSMENT PROGRAMME, ARCTIC POLLUTION 2002, at 74 (2002)). Because of this exposure, these populations are also more prone to genetic mutations and various types of cancer, not
And yet everything has changed, as we have witnessed:

(1) the Arctic transformed into a regional theatre for NATO–Russia military confrontation and nuclear proliferation in the Cold War era, and today;\(^{484}\)

(2) climate-related changes to Arctic ecosystems occurring at a speed and magnitude greater than any comparable developments in millenia, including the release of huge quantities of methane that had been frozen in permafrost for millions of years;\(^{485}\) the anticipated elimination of summer polar ice-cover for the first time in more than a
to mention the dangers associated with POPs and heavy metal consumption, which have been linked to malfunctioning of many bodily systems, more specifically the immune system. Hamilton, supra, at 80–83. In 2008, the Alaska State Department of Public Health conducted a study and discovered that the birth defect rates in Alaska are double the national average. Haider Rizvi, Arctic Groups Demand Global Chemicals’ Ban, ONEWORLD.NET, May 11, 2009, http://www.commondreams.org/headline/2009/05/09-2. Another study by the Alaska Community on Toxics reported that contaminants in blood and breast milk are higher than elsewhere in the world. Id. An April 2009 report by the Arctic Council’s working group on the Conservation of Arctic Flora and Fauna (CAFF) addresses the human and environmental impacts of ongoing over-exploitation of resources in the Russian Arctic, including “habitat fragmentation and destruction by roads, off-road tracks, surface pipelines, mining activities, and logging; unsustainable reindeer herding and grazing, with up to 20% of the tundra zone severely affected and severe damage was observed in the forest tundra zones; illegal hunting and fishing, and misuse of other natural resources; and local pollution connected with prospecting, extraction, processing and transportation of oil, gas, and mineral resources.” TIAHNA KURVITS ET AL., AN INTEGRATED ECOSYSTEM MANAGEMENT APPROACH TO CONSERVE BIODIVERSITY AND TO MINIMIZE HABITAT FRAGMENTATION IN THE RUSSIAN ARCTIC 2 (Conservation of Arctic Flora and Fauna ed., 2009).


485. See Press Release, Austl. Commonwealth Scientific & Research Org. (CSIRO), Permafrost Melt Poses Major Climate Change Threat (July 1, 2009), available at http://www.csiro.au/news/Permafrost-climate-change-threat.html (“New research shows that the amount of carbon stored in frozen soils at high latitudes is double previous estimates and could, if emitted as carbon dioxide and methane, lead to a significant increase in global temperatures by the end of this century.”). In a paper published in the most recent edition of GLOBAL BIOGEOCHEMICAL CYCLES, Dr. Pep Canadell, Executive Director of the CSIRO Global Carbon Project concludes:

[the] potential for significant feedbacks from permafrost carbon could be realized with only a small fraction of currently frozen carbon released to the atmosphere. For example if only 10 per cent of the permafrost melts, the resulting feedback could result in an additional 80 ppm carbon dioxide equivalent released into the atmosphere, equating to about 0.7°C of global warming.
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million years, 486 and the most significant retreat of the Greenland ice sheet in human history 487.


486. U.S. CLIMATE CHANGE SCI. PROGRAM, supra note 473; James E. Overland, The Case for Global Warming in the Arctic, in INFLUENCE OF CLIMATE CHANGE ON THE CHANGING ARCTIC AND SUB-ARCTIC CONDITIONS (Jacques C.J. Nihoul & Andrey G. Kostianoy eds., 2009). The United Nations Environment Programme (UNEP) reports: “[i]n the last three decades there have been declines in the extent of Arctic sea ice of 8.9 per cent per decade in September and 2.5 per cent per decade in March,” as well as declines in the thickness of the remaining Arctic ice. N. ENVTL. PROGRAM [UNEP], GLOBAL OUTLOOK FOR ICE AND SNOW 11 (2007), available at http://www.unep.org/geo/GEO_Ice/PDF/GEO_C1_LowRes.pdf. The most recent (January 2009) Arctic assessment of the U.S. Geological Survey (USGS) reports: “[t]he average September ice extent in 2007 of 4.28 million km² was not only the least ever recorded but also 23% lower than the previous September record low of 5.56 million km² set in 2005. The difference in areas corresponds with an area roughly the size of Texas and California combined. On the basis of an extended sea ice record, it appears that area of ice in September 2007 is only half of its area in 1950–70 . . . .” N.E. Rayner et al., Global Analysis of Sea Surface Temperature, Sea Ice, and Night Marine Air Temperature Since the Late Nineteenth Century, J. GEOPHYSICAL RES. (2003), cited in U.S. CLIMATE CHANGE SCI. PROGRAM, supra note 473, at 422–23. Meanwhile, as reported in August 2009 by the U.S. National Snow and Ice Data Center:

the polar ice cap shrunk an average 41,000 square miles (106,000 square kilometers) a day in July [2009] – equivalent to one Indiana or three Belgiums daily. The rate of melt was similar to that of July 2007, the year when the ice cap dwindled to a record low minimum extent of 1.7 million square miles (4.3 million square miles) in September.

the assertion of new or extended claims to sovereign territorial and economic rights (including natural resource monopolies) by each littoral state to vast, potentially resource-rich maritime areas in the Arctic Sea (in accordance with international law principles set out in the United Nations Convention on the Law of the Sea)\textsuperscript{488};

(5) the development of new institutions, mechanisms, and processes of regional environmental planning, governance, and cooperation (especially the Arctic Council and its working groups)\textsuperscript{489}; and

(6) unprecedented achievements in the recognition and exercise of self-determination by circumpolar aboriginal peoples, including the establishment of the Inuit Circumpolar Council (ICC) in 1980 as a cooperative organization and parliament for Inuit people in Alaska, Canada, Greenland and Siberia; the establishment of the Nunavut self-government in 1999\textsuperscript{490}; engagement of permanent concern the escalating rates and extent of changes in the Arctic induced by climate change to date” and emphasizing the grave threats these changes present to polar bear species survival).

487. See generally The CNA Corp., National Security and the Threat of Climate Change 58 (2007), available at http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf (“Data from NASA’s Goddard Space Flight Center show that the seasonal melt area over Greenland has trended upward at 7 percent per year over the last twenty-five years, and the ice shelf surrounding Greenland has thinned by 230 feet over the last five years.”). In addition to the ongoing melting of the ice sheet, “major glacier calving events sent up to 44 square miles of ice into the sea at a time” in late 2000/early 2001 and again in 2007; according to a 2009 study led by researchers at the University of Alaska Fairbanks, the melting of the Greenland ice sheet may be responsible for nearly 25 percent of global sea rise in the past 13 years.” Greenland Ice Sheet Melting Faster Than Expected, SCIENCE DAILY, June 13, 2009, http://www.sciencedaily.com/releases/2009/06/090612092741.htm.

488. See Bernard H. Oxman, The Territorial Temptation: A Siren’s Song at Sea, 100 AM. J. INT’L L. 830, 832 (noting that U.S. President Harry Truman’s 1945 proclamation asserting exclusive rights to exploit resources in maritime areas from the U.S. coast to the extension of its continental shelf “was so quickly accepted and emulated by other coastal states that the emergence of the regime of the continental shelf, in derogation of the principle of mare liberum, has been cited as an example of instant customary law”). Oxman’s incisive analysis continues:

The Truman Proclamation unleashed a quarter-century of territorial and quasi-territorial claims to the high seas so vast that, at the dawn of the Third United Nations Conference on the Law of the Sea, the leader of the Canadian delegation, Ambassador J. Alan Beesley, could quip that he comes to bury Grotius, not to praise him.

Id.


participation status in the Arctic Council by the ICC and
five other trans-national Arctic indigenous organizations
(the Aleut International Association (AIA), the Arctic
Athabaskan Council, the Gwich'in Council International,
The Russian Association of Indigenous Peoples of the North
(RAIPON), and the Saami Council); the establishment by
the Canadian government of the Indian Residential Schools
Truth and Reconciliation Commission; and the June
2009 assumption of self-rule by Greenland’s Inuit
population.492
“Recognising that the people of Greenland is a people pursuant to international law with the right of self-determination,” the 2009 Act on Greenland Self-Government (the Act) assigns domestic sovereignty to Greenland’s majority indigenous people “based on an agreement between Naalakkersuisut [Greenland Government] and the Danish Government as equal partners.” As a result, “the legislative power shall lie with Inatsisartut [Greenland Parliament], the executive power with Naalakkersuisut, and the judicial power with the courts of law.” On June 21, 2009, when the Act entered into force, Greenlandic became the official language of Kalaallit (i.e., the Inuit name for Greenland), and its people affirmed their indigenous national identity for the first time after centuries of Danish colonial rule.

“The crowds in Nuuk, Greenland’s pretty coastal capital, marked the devolution of more powers from Denmark on midsummer’s day, with cheers, processes and flags,” The Economist reported. The town thronged with men in white anoraks and women in kalaallisut, an outfit of sealskin boots and trousers set off with a beaded top . . . The newly elected prime minister of Greenland, Kuupik Kleist, who represents an Inuit-dominated party, promised that his country would act as an “equal partner” with Denmark, the old colonial power. The Danish prime minister, Lars Løkke Rasmussen, responded with a pledge that Greenland could claim full independence whenever it chooses. A more cordial separation is hard to imagine.

Meanwhile, “[h]undreds of Greenlanders from the area of Qaanaaq, Greenland, traveled by boat and plane to Thule Air Base to participate in the ceremony.”

international trade shows and exhibitions and through direct promotional activities aimed at selected petroleum and mining companies.” Id.

493. Act on Greenland Self-Government, No. 473, pmbl. (2009) (Den.). By “domestic sovereignty,” I refer to executive, legislative and judicial power over all domestic affairs. See id. ch. 1–2 (describing the powers that Greenland has). The Act affirms ongoing economic relations between Denmark and the “Greenland Self-Government authorities” including an annual subsidy of DKK 3,439.6 million (an amount which shall be reduced by an amount corresponding to one-half of any revenue from mineral resource activities above DKK 75 million accrued to the Self-Government authorities in any given year. Id. ch. 3. Naalakkersuisut is permitted to act in international affairs as defined by Chapter 4, i.e., in a manner consistent with Denmark’s foreign and security policy. Id. ch. 4.

494. Id. ch. 1, para. 1.
495. Id. ch. 9, para. 22.
496. Id. ch. 7, para. 20.
497. Not a Barren Country, supra note 492.
498. Id.