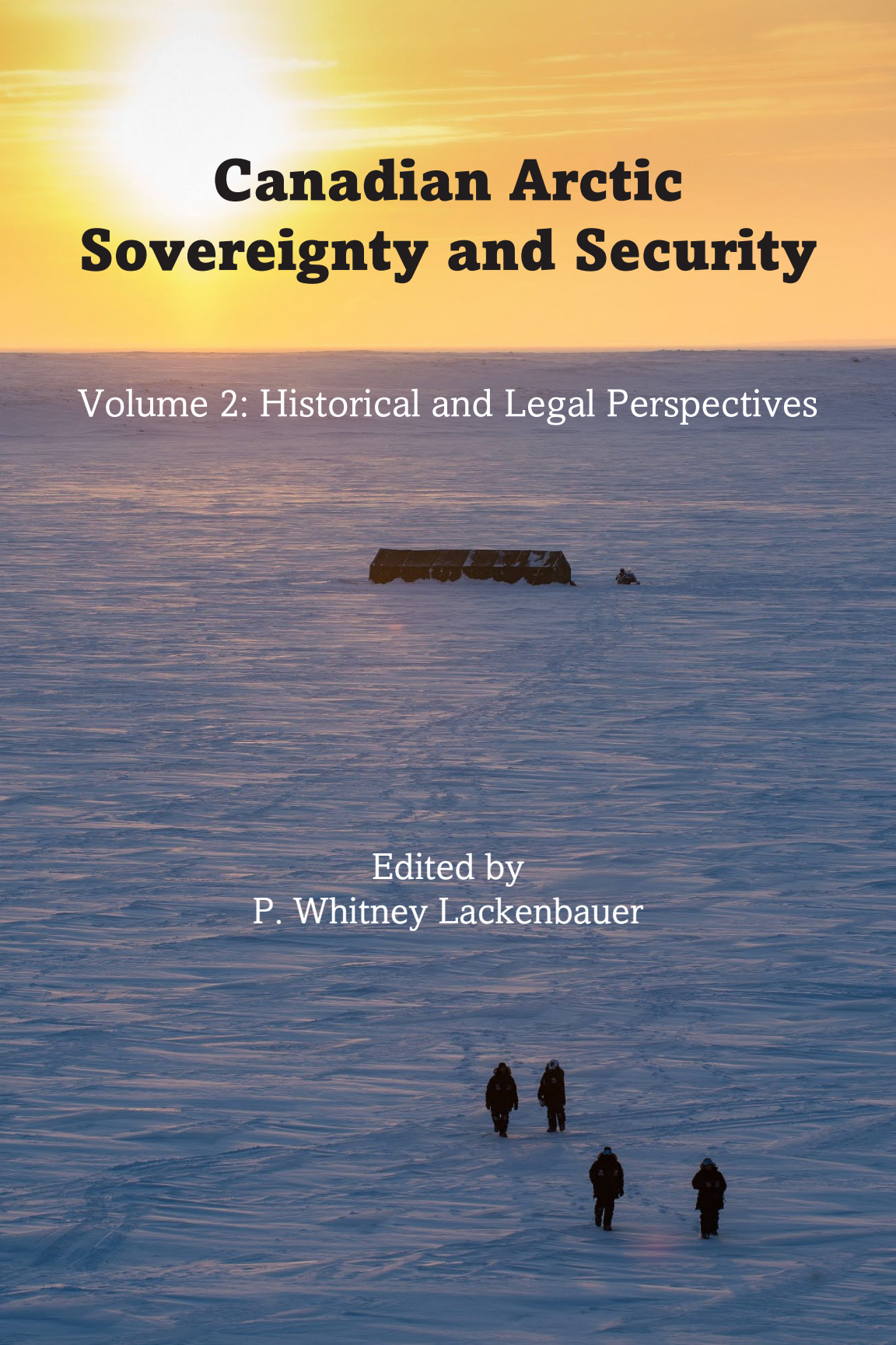


Canadian Arctic Sovereignty and Security

Volume 2: Historical and Legal Perspectives

Edited by
P. Whitney Lackenbauer



Canadian Arctic Sovereignty and Security

Volume 2: Historical and Legal
Perspectives

Edited by

P. Whitney Lackenbauer

Dedicated to Shelagh Grant (1938-2020)



Scholar, mentor, and friend

Copyright © the authors, 2024

All rights reserved. Permission policies are outlined on our website

Centre for Military, Security and Strategic Studies University
of Calgary

2500 University Drive NW

Calgary, AB T2N 1N4

Tel: 403.220.4030 / Fax: 403.282.0594

www.cmss.ucalgary.ca

Title: Canadian Arctic Sovereignty and Security, Volume 2: Historical and Legal
Perspectives / edited by P. Whitney Lackenbauer

Names: Lackenbauer, P. Whitney, editor

Description: Includes bibliographical references.

Thanks to the Department of National Defence Mobilizing Insights in National
Defence and Security (MINDS) program support to the North American and
Arctic Defence and Security Network (NAADSN) that facilitated the
compilation, editing, and printing of this book.

Cover design: Jennifer Arthur-Lackenbauer

Copy editor: Corah Hodgson

Cover credits: (front) Glenbow Archives PA-3969-17 "Inuit prisoners Sinnisiak
and Uluksuk in Edmonton, Alberta," August 1917; (back) Library and Archives
Canada

ISBN (print) 978-1-989811-33-7 / (PDF) 978-1-989811-32-0

Contents

P. Whitney Lackenbauer, Introduction	iii
1. P. Whitney Lackenbauer, <i>The Military as Nation Builder: The Case of the Canadian North</i> (2013)	1
2. P. Whitney Lackenbauer, Kenneth Eyre, and Peter Kikkert, <i>Lessons in Arctic Warfare: The Canadian Army Experience, 1945-55</i> (2017)	31
3. Richard O. Mayne, 'An Unusual Voyage in Far Northern Waters': <i>The Royal Canadian Navy's First Postwar Forays into the Arctic, 1946-1950</i> (2013)	79
4. Matthew Wiseman, <i>The Development of Cold War Soldierly: Acclimatisation Research and Military Indoctrination in the Canadian Arctic, 1947-1953</i> (2015)	91
5. Richard Goette, <i>The Roundel and Building RCAF Arctic "Air Mindedness" During the Early Cold War</i> (2012)	115
6. Daniel Heidt and P. Whitney Lackenbauer, "Sovereignty for Hire: Civilian Aircraft Contractors and the Distant Early Warning (DEW) Line, 1954-61" (2012)	137
7. Adam Lajeunesse, <i>A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986</i> (2013)	165
8. P. Whitney Lackenbauer, and Ryan Dean, <i>A Northern Nuclear Nightmare? Operation Morning Light and the Recovery of Cosmos 954 in the Northwest Territories, 1978</i> (2020)	187
9. Shelagh Grant, <i>Arctic Governance and the Relevance of History</i> (2013)	211

10. P. Whitney Lackenbauer and Peter Kikkert, Sovereignty and Security: The Department of External Affairs, the United States, and Arctic Sovereignty, 1945-68 (2011)	233
11. Ted McDorman, Canada, the United States and International Law of the Sea in the Arctic Ocean (2014)	251
12. Suzanne Lalonde and Frédéric Lasserre, The Position of the United States on the Northwest Passage: Is the Fear of a Precedent Warranted? (2013)	267
13. Michael Byers and Andreas Østhagen, Why does Canada have so many unresolved maritime boundary disputes? (2017)	309
14. P. Whitney Lackenbauer and Rasmus Leander Nielsen, Settling the Hans Island/Tartupaluk Territorial Dispute (2022)	369
15. Kristin Bartenstein and Laure Gosselin, 'Natural Prolongation' and Canada's Arctic Extended Continental Shelf: Cooperating to Make Sense of the Law, the Science, and the Facts (2020)	385
16. Further Reading	413

Introduction

P. Whitney Lackenbauer

The most urgent and important task we face is asserting Canada's sovereignty in the Arctic and northern regions, where the changing physical and geopolitical landscapes have created new threats and vulnerabilities to Canada and Canadians.

... Defending the Arctic is asserting Canadian sovereignty. To do so, we must take a new approach that improves and modernizes our defences in the region.

This means establishing greater presence, reach, mobility, and responsiveness in the Arctic and North to deal with disasters, threats and challenges to our sovereignty.

Our North, Strong and Free (April 2024)

The geophysical and political transformation of the Arctic region over the past three decades has been extraordinary. The responses from states, international organizations, sub-state actors, and non-governmental organizations (as well as from outside observers such as scholars and journalists) to these changes have reignited debates about the core political concepts of sovereignty and security, in addition to their distinctive features across the Circumpolar North. "The confluence of climate change and the end of the Cold War led the Arctic states to reconsider their Arctic interests in light of the changing geopolitical and physical environment, generating a wave of new official foreign and security policies that continue to emphasize (in many cases) Arctic states' central preoccupation with defending their Arctic territory and sovereignty," Wilfrid Greaves and I observed in a 2021 book. "Other actors, most notably Indigenous peoples through their self-governing institutions and representative organizations, have articulated conceptions of security and sovereignty in the region that both support and challenge the priorities identified by Arctic states." We noted that sovereignty and security are amongst the most widely used – and misused – concepts in current debates.¹

My introduction to the 2011 volume *Canadian Arctic Sovereignty and Security: Historical Perspectives* framed various dynamics and issues that have continued to garner news media headlines and policy attention in Canada since that time. The Conservative government of Stephen Harper insisted that previous governments had failed to perfect Canadian sovereignty and that the country needed to adopt a more activist approach to defend its national interests in the region. “Climate change is transforming the Arctic,” I noted at the time. “The ice cover on the Arctic Ocean is shrinking in breadth and depth, permafrost is melting, and indigenous flora and fauna is threatened. Questions abound about what these changes will mean for northern peoples, for transportation routes, for international boundaries, and for stability and security in the circumpolar world.”²

Fast forward thirteen years, and the situation has come full circle. When the Liberal government under Justin Trudeau came to office in 2015, it initially avoided language around sovereignty and security, believing that the Conservatives had managed to secure this as part of their partisan “brand.”³ This did not last long. The Liberal defence policy *Strong, Secure, Engaged*, released in 2017, followed by the safety, security, and defence chapter of the Arctic and Northern Policy Framework (ANPF) in 2019, acknowledged national defence as a key part of Canada’s “commitment to a safe, secure, and well-defended Arctic and North, and as a continued expression of Canada’s enduring sovereignty over our lands and waters.”⁴ In an increasingly competitive world following Russia’s unprovoked full-scale invasion of Ukraine in February 2022, strategic assessments regularly highlight that authoritarian regimes in Moscow and Beijing threaten the rules-based international order when it does not serve their interests. The Kremlin’s continued expansion and modernization of its Arctic military infrastructure, development of new military capabilities that have the potential to threaten the North American homeland (as well as allied and partner territories), and the significant role that the Arctic Zone of the Russian Federation plays in Russia’s national security and economic calculations mean that Russia cannot be ignored. China, for its part, seeks increased access to and influence in the region. While analysts debate how or why Russia or China might seek to disrupt the Arctic order, there is a growing consensus that global strategic competition spills over into the region. Canadian statements reflect these dynamics.

“The most urgent and important task we face is asserting Canada’s sovereignty in the Arctic and northern regions,” Canada’s April 2024 defence policy update insisted, “where the changing physical and geopolitical landscapes have created new threats and vulnerabilities to

Canada and Canadians.”⁵ The emphasis on sovereignty rather than security is telling. In the 2008 book *Arctic Front*, co-authors and I described sovereignty as the “zombie – the dead issue that refuses to stay dead – of Canadian public affairs.”⁶ Insisting that “sovereignty” is imperilled allows politicians and commentators to tap into primordial anxieties about Canada’s ability to preserve its ownership and control over its Arctic inheritance. The contrast is striking with the international chapter of the 2019 ANPF, which suggested that “the circumpolar Arctic is well known for its high level of international cooperation on a broad range of issues, a product of the robust rules-based international order that is the sum of international rules, norms and institutions that govern international affairs in the Arctic.” Prime among them is the law of the sea, which applies to the Arctic Ocean like it does all other oceans. The policy framework highlighted that “Canada’s Arctic sovereignty is longstanding and well established” and that “the Government of Canada is firmly asserting its presence in the North.” This includes daily activities by governments, Indigenous Peoples, and local communities who “express Canada’s enduring sovereignty over its Arctic lands and waters.”⁷ Now, it seems, the Government of Canada has replaced this confidence with a resurgent sense of vulnerability and urgency.

Historical Perspectives

I framed the introduction to the 2011 *Canadian Arctic Sovereignty and Security* volume using Kenneth Eyre’s “surges” of military interest: the first (1947-64) treating the Arctic as an “exposed flank” rather than a place of intrinsic value; the second marked by “sovereignty and symbolism” (1969-80); and a third surge, “The Land of Tomorrow,” beginning with the 1987 White Paper on defence and dissipating with the end of the Cold War. I suggested in the conclusions that Harper’s government had initiated a fourth “surge” of interest in Arctic sovereignty and security issues in the mid-2000s. The unprecedented Arctic focus of Canada’s April 2024 defence policy update released by the Trudeau government shows that this latest surge continues to gain momentum.

Given that the current book is intended to complement the earlier compilation, readers are encouraged to read the introduction to the 2011 collection for additional historical context. Eyre’s *Custos Borealis: The Military in the Canadian North, 1898-1975*, published in open-access format in 2022, also provides valuable historical insights, with my afterword furnishing a general overview of developments through to 2019.⁸ Although many chapters in the 2011 volume continue to offer important insights for scholars and practitioners alike, for this second volume I have chosen a selection of scholarly work produced since that time to reinforce

narratives introduced in the earlier collection, showcase additional themes, and celebrate new approaches and evidence.

In the first chapter, I look at “the military as nation builder” since the early twentieth century. Scholars (including myself) often highlighted the negative disruptions that military modernization wrought on the Canadian North. In this contribution, based on the 2013 Ross Ellis Memorial lecture delivered at the University of Calgary, I suggest that we should not overlook some positive aspects of military development in the North, including communications and transportation networks that opened the region to development, as well as military contributions to resilient human infrastructure in the region. I provide a concise history of the military in the Canadian North from the Yukon Field Force’s trek north during the Klondike Gold Rush, through the Second World War and Cold War, to contemporary contributions by the Canadian Rangers. “The sky no longer rains military boxes as it once did,” I conclude, “but the military’s nation-building legacy – positive and negative, direct and indirect, fleeting and enduring – helps to explain how we have got to today and where we might place our emphasis in the future.”

The Second World War brought the Canadian North into new strategic focus, but the early Cold War fundamentally reshaped how the Canadian military conceptualized the “northern approaches” to North America. In chapter two, Kenneth Eyre, Peter Kikkert, and I look at “Lessons in Arctic Warfare: The Army Experience, 1945-55.” We explore the Canadian Army’s attempts to secure a better knowledge of the characteristics of northern warfare through training exercises designed to “improve army tactics, techniques, and procedures for living and fighting in the North.” Although participants in winter exercises fixated on enduring frigid temperatures, planners discerned the most significant military operational characteristics of the North throughout all seasons: isolation, vast distances, the absence of transportation infrastructure, and the limits these variables imposed on military mobility. Post-exercise reports highlighted the importance of strategic and tactical mobility as a technical problem that had to be resolved to facilitate combat manoeuvre and logistic support, and the search for solutions constituted much of the work done at the Joint Services Experimental Testing Station at Fort Churchill. Thus, while historian Bernd Horn depicted the Mobile Striking Force (MSF) as a “paper tiger” and a “marriage of convenience” borne of Canadian austerity and paranoia about sovereignty (rather than security),⁹ we assess the lessons that the Army *did learn* in the late 1940s and 1950s, rather than gauging the forces’ practical utility as an instrument for kinetic operations. After all, we note, “a land-based, Cold

War adversary never attacked the Canadian North, so the plans and preparations were never tested in practice.”

For the first four decades of its existence, the Royal Canadian Navy (RCN) did not enter Canada’s Arctic waters. While Canada downsized its armed forces and pondered its Arctic requirements in the early postwar period, the U.S. Navy and Coast Guard sailed into the Far North on a series of exercises designed to increase military knowledge and operating capabilities in the Arctic. In chapter three, Richard Mayne revisits “‘An Unusual Voyage in Far Northern Waters’: The Royal Canadian Navy’s First Post-war Forays into the Arctic, 1946-50.” Although one exercise, two deployments, and a scientific expedition in the Arctic did not represent a level of commitment commensurate with the region’s growing strategic significance, his careful analysis of documents reveals that the RCN was eager to explore the extreme and unique challenges facing naval operations in the region, and it sought to protect the nation’s interests in the Arctic. By charting early RCN attitudes towards the Arctic, as well as the tactical and operational factors that affected northern naval operations during this period, Mayne argues that government cutbacks and limited resources, rather than a lack of interest, prevented naval personnel from doing more.

The early postwar era also saw the Department of National Defence sponsoring scientific research into the myriad challenges of military operations in cold regions.¹⁰ In chapter four, Matthew Wiseman examines “The Development of Cold War Soldierly: Acclimatization Research and Military Indoctrination in the Canadian Arctic, 1947-53.” During this period, he documents how leading scientists at the Defence Research Board (DRB) conducted physiological and psychological experiments on soldiers who undertook indoctrination training for Arctic warfare. In one experiment designed to determine the ideal characteristics of cold-weather soldiers, two participating troops suffered physical and mental injuries. Although the Army questioned its involvement in future DRB tests owing to these casualties, ethical issues of human testing failed to substantively change military discourses about involving soldiers in acclimatization and indoctrination research. “Cold-weather testing on male troops supported and perpetuated idealized notions of virile soldiery,” Wiseman concludes. “Involving researchers and scientists in important military investigations on northern warfare developed, in theory, a model for future combat development work” and sought “to derive information to improve operational concepts, doctrine, and tactical principles pertinent to cold-weather warfare.”

In chapter 5, Richard Goette demonstrates how articles in the Royal Canadian Air Force (RCAF) service magazine *The Roundel* contributed to a sense of Arctic “air mindedness” (a concept introduced by historian Jonathan Vance¹¹) during the early Cold War. With Canadian strategic thinking during the early Cold War geographically reoriented from a focus on east-west to a north-south perspective, the air force found itself much more involved in Arctic pursuits. These included more “kinetic” roles such as defending North America in conjunction with the Americans, in addition to other roles such as aerial mapping, aid to the civil power, and especially sustainment and search and rescue missions carried out by air mobility resources. Goette’s chapter reveals a concerted effort by the RCAF leadership to ensure that air force personnel thought about operational requirements in the Arctic. Greater awareness of the strategic importance of the Arctic to Canada was an important objective, as was making personnel familiar with the challenges and opportunities experienced by personnel manning RCAF bases in the North. Air mobility assets proved to be (and still are) an important lifeline for RCAF personnel, as well as other military and civilian communities in the region. Furthermore, in analyzing coverage of Arctic and northern aviation-related issues of interest to Canadian airmen, Goette touches on the unique social life and working conditions that evolved at remote bases.

As the Cold War heated up in the 1950s, the Americans sought extensive air defence systems extending to the northernmost reaches of the continent. The Distant Early Warning (DEW) Line, built across the seventieth parallel to detect Soviet bombers, was the boldest megaproject in Arctic history, dramatically altering the military, logistic, and demographic characteristics of the Canadian Arctic. The United States designed and paid for it. The Canadian military was already stretched thin by the North Atlantic Treaty Organization’s (NATO) commitments in Europe, and Canada could not afford the kind of installations that the Americans wanted. Once again, Canadian officials negotiated a very favourable agreement that protected Canada’s sovereignty and secured economic benefits for Canadian companies in meeting the logistical demands associated with constructing and sustaining a system of this magnitude in the Far North.

In chapter six, I collaborate with Daniel Heidt to examine the important (and contentious) role of civilian airlift contractors in the construction and early operational phases of the DEW Line. The airlift requirements of the 2,500-mile-long radar network required a herculean effort. The Canadian government, conscious of nation-building possibilities, secured guarantees from the U.S. that Canadian carriers would be utilized “to the

fullest extent practicable." Canada's power to control specific tenders was sometimes compromised by America's power of the purse. Yet investments in new aircraft and the need for continued work ensured that Canadian companies jealously guarded and policed American airlift competition independently of Ottawa. American DEW Line contract dollars therefore afforded Canadian commercial carriers the opportunity to expand while concurrently buttressing Canadian Arctic sovereignty. Although contexts have changed, important lessons learned during the DEW Line civil airlift remain noteworthy – particularly the prospect of leveraging civilian assets in the North.

Ken Eyre noted that the early postwar surge of military interest in the Arctic lasted just over a decade, peaking in the late 1950s and diminishing quickly as the world entered an era of intercontinental ballistic missiles and ballistic missile submarines that changed the strategic deterrence and defence equation. Canadian officials believed that they could safely reduce the military *presence* in the region without concern that this would undermine the nation's *de facto* sovereignty over its Arctic territory.¹² The RCN ceased its northern summer voyages, the Canadian Army no longer exercised in the North, the RCAF curtailed its aerial surveillance patrols, and the military turned over the Northwest Territories and Yukon Radio System and the Alaska Highway to civilian control. "Canadian defence policy was dominated by the three 'Ns' of NORAD, NATO and nuclear weapons" by the 1960s, leaving only the DEW Line stations to maintain their quiet Arctic vigil by the middle of the decade.¹³

The legal status of the Arctic waters posed a more intractable dilemma than questions of terrestrial sovereignty, and questions about the Northwest Passage surfaced during the 1960s as the United States began to undertake submarine operations in the waters of Canada's Arctic Archipelago. While some scholars have suggested that these U.S. Navy activities represented a threat to Canada's maritime sovereignty, Adam Lajeunesse's "A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-86" (chapter seven) challenges their assumptions and offers a more positive interpretation of the bilateral defence relationship in the Cold War Arctic. After analyzing publicly available documentary evidence from the 1960s to 1986, he concludes that the American submarine program in Canada's northern waters appears to have been "a fully cooperative venture" rather than "a secret assault on Canadian sovereignty." U.S. Navy transits were normally conducted as a joint operation, with Canadian foreknowledge and consent. Lajeunesse also suggests that this cooperation extended to the development of Arctic underwater listening and detection systems. "While Canadian politicians

may have offered bluster and nationalistic rhetoric when speaking publicly on the question of Arctic sovereignty," Lajeunesse concludes, "the facts suggest that behind the scenes, the defence of the region was being carried out in the same cooperative spirit that has always characterized the defence of the continent. The fears of secretive American submarine passages were unfounded and concerns over the diminution of Canadian sovereignty exaggerated." This fits with a broader re-evaluation of Canada-U.S. relations in the Cold War Arctic by Canadian historians over the last decade, which argues that, rather than sacrificing sovereignty in the interests of continental security, the Canadian government exercised an appropriate level of control over Arctic developments and protected its sovereign interests.¹⁴

Bilateral cooperation also extended to unconventional security threats, including a radioactive object that literally fell from the sky. The link between outer space and Arctic security became starkly apparent during Operation *Morning Light*, the Canadian-American mission to recover the nuclear material from Cosmos 954, a downed Soviet satellite that crashed in the Northwest Territories in 1978. This major operation covered an area greater than 124,000 square kilometres and involved more than two hundred military personnel and scientists who recovered more than four thousand particles, flakes, and pieces of satellite debris scattered from the East Arm of Great Slave Lake to the area around Baker Lake. In chapter eight, Ryan Dean and I show how Canadian and American responders worked together to avert a "nuclear nightmare" through tight binational cooperation, systematic scientific monitoring, and deliberate recovery operations. After-action reports that critically evaluated the methods, equipment, and personnel employed during *Morning Light* reveal how a combination of civilian scientific expertise and military capabilities yielded an effective response to a practical nuclear threat that, rather than eroding public confidence, successfully mitigated risks in a timely and cooperative manner.

International Law

In chapter nine, "Arctic Governance and the Relevance of History," the late historian Shelagh Grant argues that the history of the North American Arctic offers "important insights into previous successes and failures in governing the region, as well as previous consequences of wars and economic adversity." She notes how the histories of Arctic governance and sovereignty are closely related, introducing the evolution of international law affecting the region and distinguishing between the concepts of *de jure* and *de facto* sovereignty.

In chapter ten, historian Peter Kikkert and I cast a critical gaze at the Department of External Affairs and how it envisaged the interplay between Arctic sovereignty and security vis-à-vis the United States from 1945 to 1968. We argue that Canadian policy makers did an admirable job of balancing Canadian sovereignty interests with the security needs of the United States from the early Cold War to the eve of the *Manhattan* voyage in 1969. Although Canada did not get its way on every issue, an underlying spirit of mutual respect allowed Canada to preserve its sovereignty while accommodating its American ally insofar as its national interests allowed. This approach secured the United States' acquiescence to Canadian territorial sovereignty claims, despite America's rejection of the sector principle that (rather ambiguously) purported to enclose Canadian sovereign rights up to the North Pole. When the emphasis shifted to maritime issues in the 1950s, the legal issues proved more intractable, but a functional approach, predicated on "agreeing to disagree" over the status of the waters of the Canadian Arctic Archipelago, enabled a cooperative bilateral relationship. Rather than seeing Canadian decision-making in the 1940s and 1950s as failing to secure American acquiescence to Canada's future claim to the Northwest Passage, we offer a more positive appraisal suggesting that careful diplomacy helped to position Canada so that it could implement a functional approach under Prime Minister Trudeau in the early 1970s and declare straight baselines under Prime Minister Mulroney in 1985. While postwar diplomatic actions appear *ad hoc*, reactionary, and tentative, we contend that they were appropriately suited to a complex situation. Officials at External Affairs acknowledged Canada's limitations but managed, in steering a prudent and practical course, to lay the groundwork for future assertions of Canadian jurisdiction and sovereignty in the Arctic.

Successive Canadian governments have declared that all of the waters within Canada's Arctic Archipelago are historic internal waters over which Canada exercises full sovereignty. This includes the right to govern and control access to the various routes that make up the Northwest Passage (NWP), which Canada insists are subject to the full force of its legislative, administrative, judicial, and executive powers as a coastal state. This necessarily implies an unfettered right to deny access, with no right of transit passage for foreign-flagged vessels (as would be the case were it an international strait) and no right of innocent passage for foreign-flagged vessels (since the waters are internal and not part of the territorial sea). Washington, on the other hand, has maintained consistently over the past five decades that the NWP constitutes an "international strait" through which the ships and aircraft of all nations enjoy a right of transit

passage. Although Canadian Arctic governance measures have in the past been the object of protests by other states, and European Union (EU) policy documents have emphasized freedom of navigation in the newly opened Arctic routes,¹⁵ the United States has been the most vocal and persistent objector to Canada's sovereignty position.

In chapter eleven, international legal scholar Ted McDorman provides insights into "Canada, the United States, and International Law of the Sea in the Arctic Ocean." He explains that while the two countries agree on the international legal and governance architecture that applies to the region, their relationship is complex. McDorman carefully parses three different disputes: a maritime boundary dispute, a dispute respecting the international legal status of waters, and a dispute involving the interpretation of a specific provision in a treaty. The longstanding dispute about the delimitation of the northern maritime boundary in the Beaufort Sea, rooted in different interpretations of whether the land boundary between Alaska and the Yukon extends into the ocean, intersects with issues around the continental shelf beyond the two-hundred-nautical-mile exclusive economic zone (EEZ). In addition to touching on the NWP issue, McDorman also lays out the parameters of the legal dispute between the two states respecting the application of Article 234 of *UNCLOS*: the so-called "Arctic exception." In the end, he explains that both countries have avoided "having the legal disputes escalate into serious confrontational matters or ones that overly burden an already full bilateral agenda," and he characterizes their relationship with respect to the Arctic Ocean as "primarily one of calm" and "cooperation 'on the water.'"

In the perennial debate between Ottawa and Washington about the legal status of the NWP, the American side has consistently raised the argument that acquiescing to Canada's historic waters position could create a negative precedent, leading other coastal states to claim similar status for local straits and close off vital maritime arteries elsewhere in the world, thus inhibiting freedom of navigation. In chapter twelve, international legal scholar Suzanne Lalonde and geographer Frédéric Lasserre ask whether U.S. concerns are warranted. Could coastal states elsewhere in the world rely on a recognition of Canadian sovereignty over the NWP to bolster their claims over a local strait? Their nuanced findings identify potentially analogous situations, explain why the NWP would not set a precedent affecting the status of most strategic straits around the world, and suggest political considerations behind the U.S. position.

The evolution of the law of the sea, and specifically the rights and responsibilities codified through the *United Nations Convention on the Law*

of the Sea (UNCLOS), gives the Arctic states the right to define their adjacent maritime zones into the Arctic Ocean. UNCLOS allows Arctic states to extend their territorial seas to a distance of twelve nautical miles and to create a two-hundred-mile EEZ. Five of the Arctic states are also currently involved in the process of delineating the outer limits of their extended continental shelves. Under the terms of Article 76 of UNCLOS, coastal states have the right to determine if they have a continental shelf that extends beyond their EEZ. If they do, they are allowed to determine how far it extends, submit their claim to the United Nations Commission on the Limits of the Continental Shelf (CLCS), and establish their sovereign rights over the soil and subsoil of the shelf.¹⁶ Given the prevailing ice conditions, this has proven a difficult and expensive process. Nevertheless, all of the Arctic states have determined that it is worth their effort, and the five coastal states affirmed at a landmark 2008 meeting in Ilulissat, Greenland, that they would follow the rules prescribed by UNCLOS. They also agreed that any overlaps that may emerge will be resolved peacefully through the processes outlined by the convention (even though the United States has not ratified it).

In chapter thirteen, Michael Byers and Andreas Østhagen turn to a core question: “Why does Canada have so many unresolved maritime boundary disputes?” While Canada’s five unresolved maritime boundaries might seem like a high number, given that Canada has only three neighbours (the United States, Denmark/Greenland, and France), their study places the Arctic disputes in the Beaufort Sea, the 1973 Canada-Greenland boundary, and in the Lincoln Sea both in broader national and comparative international contexts. Through a comparison with Norway (a country that has settled all of its maritime boundaries, including in the Barents Sea with Russia), the authors identify factors that either encourage or impede maritime boundary negotiations. They explain how each of Canada’s unresolved maritime boundaries reflects its own specific and unique geographic, historic, political, and legal circumstances. In particular, Canada has few economic incentives to settle its unresolved disputes and is acutely sensitive to “the power differential with the United States,” meaning that perceived concessions to Washington bring domestic political risk.

In June 2022, Canada succeeded in resolving longstanding Arctic boundary disputes with its eastern Arctic neighbour when it signed an agreement with the Kingdom of Denmark and Greenland to create an international boundary on Hans Island (Tartupaluk in Greenlandic) and to complete the process of delimiting the longest continuous maritime boundary in the world. In chapter fourteen, political scientist Rasmus

Leander Nielsen and I explain how the parties, who self-identify as “close, like-minded partners committed to democratic principles,” settled the territorial dispute in a package deal that also determined the maritime boundary in the Lincoln Sea and the outer limits of their continental shelf beyond two hundred nautical miles in the Labrador Sea. The authors explain how this agreement sent an important signal at a volatile time in regional and international affairs, reinforcing the rules-based international order that is rooted in adherence to respectful legal and diplomatic processes.

Canada’s longstanding process to delineate the limits of its continental shelf, including in the Arctic,¹⁷ is rooted in international law but also intersects with identity politics for Canada and its Arctic neighbours.¹⁸ After filing preliminary information concerning the outer limits of its continental shelf in the Arctic Ocean to the CLCS in 2013, Canada submitted a 2,100-page scientific report as a fuller submission in May 2019. In chapter fifteen, Kristin Bartenstein and Laure Gosselin explain how the delineation of extended continental shelves is based on interpretations in which scientific and legal arguments intertwine with particular geophysical considerations. The authors decipher how Canada has dealt with legal, scientific, and factual interpretations, focusing on the concept of “natural prolongation.” In highlighting interpretative challenges that Canada has encountered, as well as opportunities that it has seized, they show how Ottawa worked to build a scientific and legal consensus to support the delineation articulated in its submission. Canada submitted an addendum in December 2022 to cover the full length of the Central Arctic Plateau, which expanded the amount of overlap with Russia (which had extended its extended continental shelf claim to Canada’s EEZ the year before). The prolonged time that the CLCS typically takes to evaluate the scientific merit of individual states’ submissions, coupled with a frosty global geopolitical climate, means that the final negotiation of boundaries between states regarding their respective continental shelves in the Arctic Ocean is likely to be a long-term process.¹⁹

In her foreword to Canada’s 2024 defence policy update, Foreign Minister Mélanie Joly emphasized that “vigorous assertion of our sovereignty, particularly in the Canadian Arctic, is a fundamental priority.”²⁰ If Arctic sovereignty is the zombie that never dies in Canadian public discourse, commentaries linking defence and security to sovereignty and perceived threats to Canada’s control over and in its Arctic region are equally persistent. “Defending the Arctic is asserting Canadian sovereignty,” the April 2024 defence policy update declared. “This means establishing greater presence, reach, mobility, and

responsiveness in the Arctic and North to deal with disasters, threats and challenges to our sovereignty.” This reflects assessments suggesting that “Canada’s sovereignty, security, and prosperity are no longer guaranteed by the same conditions that have protected us until now,” and that “the coming decades will be more competitive and complex than those that came before.”²¹

Readying ourselves for an increasingly competitive and complex future requires sober reflection about historical and contemporary capabilities, activities, positions, and relationships. Offering readers an overview of ideas about sovereignty, security, and international law in the Canadian Arctic since the end of the Second World War, this volume hopes to bring diverse research contributions into dialogue.²² I also hope that it lays a foundation for future research and helps students, scholars, and policy makers as they frame and shape historiographical and policy debates.

Notes

¹ Wilfrid Greaves and P. Whitney Lackenbauer, “Understanding Sovereignty and Security in the Circumpolar Arctic,” in *Breaking Through: Understanding Sovereignty and Security in the Circumpolar Arctic*, eds. Wilfrid Greaves and P. Whitney Lackenbauer (Toronto: University of Toronto Press, 2021), 4.

² P. Whitney Lackenbauer, “Introduction,” in *Canadian Arctic Sovereignty and Security: Historical Perspectives*, ed. P. Whitney Lackenbauer (Calgary: Centre for Military and Strategic Studies/University of Calgary Press, 2011), 1-22, <https://journalhosting.ucalgary.ca/index.php/cpmss/article/view/36323/29275>.

³ P. Whitney Lackenbauer, “Arctic Defence and Security: Transitioning to the Trudeau Government,” in *Whole of Government through an Arctic Lens*, eds. P. Whitney Lackenbauer and Heather Nicol (Antigonish: Mulroney Institute of Government, 2017), 308-40. See also Lackenbauer, “Canada’s Emerging Arctic and Northern Policy Framework: Confirming a Longstanding Northern Strategy,” in *Breaking the Ice Curtain?: Russia, Canada, and Arctic Security in a Changing Circumpolar World*, eds. P. Whitney Lackenbauer and Suzanne Lalonde (Calgary: Canadian Global Affairs Institute, 2019), 13-42; Lackenbauer, “Toward a Comprehensive Approach to Canadian Security and Safety in the Arctic,” in *Breaking Through*, 137-67; Ryan Dean, “Speaking security: constructing Canada’s 2009 northern strategy,” *Polar Journal* 12, no. 2 (2022): 303-21; and Lackenbauer and Adam Lajeunesse, *Beyond “Use It or Lose It”: Arctic Sovereignty, Security, and Canada’s Northern Strategy Under Prime Minister Stephen Harper* (Antigonish: Brian Mulroney Institute of Government, June 2024), https://www.mulroneyinstitute.ca/sites/mulroney/files/2024-07/MPPG%20No%2011_FINAL_web.pdf.

⁴ Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), “Arctic and Northern Policy Framework: Safety, Security, and Defence Chapter” (2019), <https://www.rcaanc-cirnac.gc.ca/eng/1562939617400/1562939658000>.

⁵ Department of National Defence (DND), *Our North, Strong and Free: A Renewed Vision for Canada's Defence* (April 2024), <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/north-strong-free-2024.html>.

⁶ Ken S. Coates, P. Whitney Lackenbauer, William R. Morrison, and Greg Poelzer, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen, 2008), 1.

⁷ CIRNAC, "ANPF International Chapter" (2019), <https://www.rcaanc-cirnac.gc.ca/eng/1562867415721/1562867459588>.

⁸ Kenneth C. Eyre, *Custos Borealis: The Military in the Canadian North, 1898-1975*, ed. P. Whitney Lackenbauer (Peterborough: North American and Arctic Defence and Security Network, 2020), <https://www.naadsn.ca/wp-content/uploads/2020/02/custos-borealis-eyre-lackenbauer-NAADSNweb-jan20.pdf>.

⁹ See Bernd Horn, *Bastard Sons: An Examination of Canada's Airborne Experience, 1942-1995* (St. Catharines: Vanwell, 2001), 16; and Horn, "Gateway to Invasion or the Curse of Geography?: The Canadian Arctic and the Question of Security, 1939-1999," in *Canadian Arctic Sovereignty and Security*, 23-54.

¹⁰ For a broader study, see Matthew S. Wiseman, *Frontier Science: Northern Canada, Military Research, and the Cold War, 1945-1970* (Toronto: University of Toronto Press, 2024). See also Wiseman, "Unlocking the 'Eskimo Secret': Defence Science in the Cold War Canadian Arctic, 1947-1954," *Journal of the Canadian Historical Association* 26, no. 1 (2015): 191-223.

¹¹ Jonathan Vance, *High Flight: Aviation and the Canadian Imagination* (Toronto: Penguin, 2003).

¹² See, for example, P. Whitney Lackenbauer, "'Defence Against Help': Revisiting a Primary Justification for Canadian Participation in Continental Defence with the United States," *Journal of Military and Strategic Studies* 20, no. 2 (2021): 62-89, <https://jmss.org/article/download/72094/54678/>.

¹³ Kenneth Eyre, "Forty Years of Military Activity in the Canadian North, 1947-87," *Arctic* 40, no. 4 (1987): 296.

¹⁴ Beginning in the late 1980s, historian Shelagh Grant was at the forefront of a school of historiographical thought that cast the Americans in the role of the Arctic antagonist, advancing defence and security agendas during the early Cold War that threatened Canada's sovereignty in the region. See Shelagh D. Grant's *Sovereignty or Security?: Government Policy in the Canadian North, 1936-1950* (Vancouver: UBC Press, 1988) and *Polar Imperative: A History of Arctic Sovereignty in North America* (Vancouver: Douglas & McIntyre, 2010). For counterpoints, see P. Whitney Lackenbauer, "Right and Honourable: Mackenzie King, Canadian-American Bilateral Relations, and Canadian Sovereignty in the Northwest, 1943-1948," in *Mackenzie King: Citizenship and Community*, eds. John English, Kenneth McLaughlin, and P. Whitney Lackenbauer (Toronto: Robin Brass Studios, 2002), 151-68; Coates et al., *Arctic Front*; P. Whitney Lackenbauer and Peter Kikkert, "Sovereignty and Security: Canadian Diplomacy, the United States, and the Arctic, 1943-1968," in *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909-2009*, eds. Greg Donaghy and Michael K. Carroll (Calgary: University of Calgary Press, 2011), 101-20; Daniel Heidt, "Clenched in the JAWS of America? Canadian Sovereignty and the Joint Arctic Weather Stations, 1946-1972," in *Canadian Arctic Sovereignty and Security*, 145-70; Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty* (Vancouver: UBC Press, 2016); Peter Kikkert, Adam Lajeunesse, and P. Whitney Lackenbauer, "Lester Pearson, the United States, and Arctic Sovereignty: A Case of Un-Pearsonian Diplomacy?," in *Mike's World: Lester B. Pearson and Canadian*

External Affairs, eds. Asa McKercher and Galen Roger Perras (Vancouver: UBC Press, 2017), 149-68; and Daniel Heidt and P. Whitney Lackenbauer, *The Joint Arctic Weather Stations: Science and Sovereignty in the High Arctic, 1946-1972* (Calgary: University of Calgary Press, 2022).

¹⁵ European Union (EU), *Communication of the European Communities to the European Parliament and the Council, The European Union and the Arctic Region* (2008); European Parliament, *European Parliament Resolution of 12 March 2014 on the EU Strategy of the Arctic* (2015). For broader context, see P. Whitney Lackenbauer and Suzanne Lalonde, "Searching for Common Ground in Evolving Canadian and EU Arctic Strategies," in *The European Union and the Arctic*, eds. Nengye Liu, Elizabeth A. Kirk, and Tore Henriksen (Leiden: Brill, 2017), 119-71.

¹⁶ Ted L. McDorman, "The Role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World," *International Journal of Marine and Coastal Law* 17, no. 3 (2002): 301-24; McDorman, "The Continental Shelf Beyond 200 NM: Law and Politics in the Arctic Ocean," *Journal of Transnational Law & Policy* 18, no. 2 (2009): 155-85.

¹⁷ See Elizabeth Riddell-Dixon, "The seven-decade quest to maximize Canada's continental shelf," *International Journal* 69, no. 3 (September 2014): 422-43, and Riddell-Dixon, *Breaking the Ice: Canada, Sovereignty, and the Arctic Extended Continental Shelf* (Toronto: Dundurn, 2017).

¹⁸ James Manicom, "Identity politics and the Russia-Canada continental shelf dispute: An impediment to cooperation?," *Geopolitics* 18, no. 1 (2013): 60-76.

¹⁹ Eilis Quinn, "Canada extends continental shelf claim, increasing overlaps with Russia in Arctic," *Eye on the Arctic*, 22 December 2022, <https://www.rcinet.ca/eye-on-the-arctic/2022/12/22/canada-extends-continental-shelf-claim-increasing-overlaps-with-russia-in-arctic/>.

²⁰ "Message from the Minister of Foreign Affairs," in DND, *Our North, Strong and Free*, vii.

²¹ DND, *Our North, Strong and Free*, 4, 29.

²² Although there is modest overlap in discussions of context across some chapters, I have left the text of the contributions as originally published (apart from the correction of occasional typographical or grammatical errors) in anticipation that readers may wish to consult individual chapters as standalone contributions on specific topics and themes.

1

The Military as Nation-Builder: The Case of the Canadian North

P. Whitney Lackenbauer*

The Arctic has taken centre stage in not only Canadian political and security thinking in recent years, but internationally as well. Political scientist Rob Huebert, Associate Director of the Centre for Military and Strategic Studies, has been leading the sovereignty and security charge in Canada for more than a decade at this point. First he warned us to fend off the Americans over the Northwest Passage, followed by the Danes over Hans Island, then the Russians when they planted flags on the seabed at the North Pole or flew close to our airspace, and now the Chinese and the Indians who are clamouring to get into the Arctic Council, access Arctic resources, and use Arctic shipping routes. Huebert perceptively notes that our Arctic policies tend to be reactive rather than proactive. We have debated our respective positions – Huebert serving, in Franklyn Griffiths’ memorable description, as the “primary purveyor of polar peril,” and me as a prognosticator of polar peace and pragmatic preparedness. I have learned a lot from our exchanges. But this is neither the narrative nor the debate that I wish to engage here.¹ This paper focuses closer to home, exploring tangible ways that the military has shaped Northern nation-building in Canada – and the peculiar ways that our Northern experience has begun to shape our military.

There is a lot of terrain to cover, like the Arctic itself. Accordingly, I will highlight three themes: communications, transportation, and human infrastructure.

* Originally delivered as the 2013 Ross Ellis Memorial Lecture in Military and Strategic Studies at the University of Calgary and published in the *Journal of Military and Strategic Studies* 15, no. 1 (Summer 2013): 1-32.

A few quotes help to frame this study. The first is from Prime Minister Stephen Harper. “We believe that Canadians are excited about the government asserting Canada’s control and sovereignty in the Arctic,” Harper told a *Toronto Sun* reporter on 23 February 2007:

We believe that’s one of the big reasons why Canadians are excited and support our plan to rebuild the Canadian Forces. I think it’s practically and symbolically hugely important, much more important than the dollars spent. And I’m hoping that years from now, Canada’s Arctic sovereignty, military and otherwise, will be, frankly, a major legacy of this government.²

What will the military’s legacy be? Simple insurance against the alleged possibility that, if Canada does not demonstrate effective military occupation, we might lose our sovereignty “by dereliction”?³ Some international lawyers (including in the Department of Foreign Affairs and International Trade) take umbrage at this notion. Northerners may also be offended. After all, people – now Canadians – have been “using” the Arctic since time immemorial.

Northern ways of life have changed significantly over the last century, and they continue to change today. Given the “perfect storm” that Huebert has forecast for the Arctic over the last decade, he suggests that the stakes are higher than ever. But this perfect storm already arrived – more than a half century ago. Journalist and documentary filmmaker Kevin McMahon, in his intriguing 1987 book *Arctic Twilight*, noted that:

Historians chronically speak of the military opening up the Arctic, as if it had been a kind of locked and mysterious room before some clever army engineers happened by with the keys. Really, the military swept over the Arctic – first during World War II and more so during the Cold War – like an iron cloud, carpet bombing the place with boxes. Their job was the assertion of sovereignty. Every place a box landed became a beach-head for industrialized society. The boxes soon became the foundation for the Canadian government, which the military had given cause to worry about its sovereignty. Boxes were added, and more of our society – with its various virtues and vices, machines and organizations, ideals, morals, values and goals – were shipped north. What adult Inuit recall when they look back, not always in anger, is decade after decade when the skies rained boxes. The skies rain boxes still.⁴

Northern military sites were beachheads of modernism during the Cold War: sites of wage employment, modern housing, and Western technologies. Defence initiatives – conceived from afar and implemented

locally – were not designed to bring Indigenous peoples under state control, but they had far-reaching impacts all the same. Accordingly, Inuit political leader Mary Simon once summarized that “too often, military projects are centralized undertakings that are unilaterally imposed on indigenous peoples and their territories. Such actions are inconsistent with the basic principles of aboriginal self-government.”⁵ Cast in these terms, the so-called “militarization” of the Arctic appears to fit within the framework of a coercive, totalizing⁶ state interested in re-engineering Northern life to conform with modern (and military) priorities.

Commentators often overlook the positive aspects of military development in the North – the communications and transportation networks that opened the region to development, and the modest but unique ways that the military contributes to resilient *human* infrastructure in the North. Our narratives emphasizing the *reactive* nature of military promises, or the *lack* of continuous military presence, frequently miss the military’s salient nation-building role in the North.

In his doctoral thesis on the military in the Canadian North, Kenneth Eyre noted:

Military activity has been a significant factor in the development of northern infrastructure both as deliberate national development programs and as the by-product of defence-related construction activities. While the military has had a considerable impact on the North, the northern fact has had surprisingly little impact upon the Canadian military.⁷

The military shaped the North – but the North did little to shape the military. Dr. Eyre had solid grounds to make this case in the early 1980s. In the twenty-first century, I am not sure that this adequately reflects the evolving relationship between the military and Northern peoples.

* * *

How has the military shaped the Canadian North?

A comprehensive study might begin with the French and English battles for fur trade era supremacy in Hudson Bay at the end of the seventeenth century, or with the Royal Navy officers’ search for prestige (and promotion) in the nineteenth century, culminating with the disappearance of John Franklin’s expedition and the epic search to discover his fate. But these are not “Canadian” stories *per se*.

The young dominion only acquired its Arctic territory in 1870 and 1880. When it came to the High Arctic Islands, Canada only took them because Britain wanted to transfer its nebulous rights after receiving “two apparently innocent requests” for mining concessions on Baffin Island in

1874.⁸ The colony complied and simply sat on its new holdings without worrying about their extent. Facing no military challenges in the Arctic, and with national interest focused on the Great Plains where the Canadian Pacific Railroad was laying the steel spine of a transcontinental nation, the federal government had no imperative to take action in its Arctic hinterland.

The Klondike Gold Rush showed that frontier resources could generate international excitement. The small Yukon Field Force, formed in Ottawa in 1898 with 203 members of the Canadian Regular Force, went north to Fort Selkirk and Dawson in the Yukon in an “aid to the civil power” capacity, assisting the Northwest Mounted Police in maintaining law and order during the rush. It returned south two years later, and the Dawson Rifles of Canada (a non-permanent militia unit formed in their place) disbanded five years later, leaving the Canadian North without any military presence once again.⁹

In the early twentieth century, official missions explored the Arctic and collected customs duties and licensing fees from whalers – a modest assertion of Canadian legal authority. By the interwar years, Royal Canadian Mounted Police (RCMP) posts dotted the northern landscape, suggesting a continuous state presence.¹⁰ After Canadian negotiators reached agreements with Denmark and Norway to settle terrestrial sovereignty claims, and American explorers fell into line and complied with Canadian regulations, worries about lands and islands dissipated. More importantly, simple frozen geography seemed to preclude any foreign military threat.¹¹

Nevertheless, the Canadian military made its first direct contributions to Northern development following the First World War. The fledgling Royal Canadian Air Force (RCAF) began the enormous task of taking aerial photographs to support the mapping of the entire North. Military fliers and mapmakers with the Army Survey Establishment (now the Canadian Forces Mapping and Charting Establishment) thus helped to make the North *legible* for development and for the extension of state control.¹² The RCAF also conducted the first aerial ice reconnaissance in Davis and Hudson Straits in 1927-28, studying ice, weather, and navigation conditions along the new grain route from Churchill on Hudson Bay to the ports of Europe, and establishing elementary navigation aids and flying bases. This fit with the RCAF’s interwar role as the government’s “civil air company,” transporting officials into remote regions, blazing new air mail routes, and flying sick and injured trappers, traders, and Indigenous people from remote outposts to southern hubs where they could get medical attention.¹³

For the army, however, there was little direct role. Certainly, there was no thought of sending young soldiers, like Sergeant Ross Ellis of the 15th Alberta Light Horse, to the Arctic to train. Had Ellis been a member of the Royal Canadian Corps of Signals, however, this might have been different.

In 1923, the federal government turned to the military to directly support national development when the Royal Canadian Corps of Signals (RCCS) opened the first stations of the Northwest Territories and Yukon Radio System (NWT&YRS) in the Yukon: at Dawson, the northern terminus of the Government Telegraph Line, and at Mayo, the mining hub home to the gold commissioner, mining recorder, and RCMP commissioner. The Department of the Interior covered the costs, and the Department of National Defence (DND) jumped at the opportunity to have practical roles subsidized in an austere budgetary environment. This radiotelegraphy system, using high- and low-frequency radio communications, allowed northerners to send morse code messages down to Edmonton and then into the telegraph system that served all of Canada. "The new outlet provided by [the] radiotelegraph station was immediately utilized by banks, mining and steamship companies and the general public, as well as by Government agencies," the official Signal Corps historian noted. "All were loud in their praise of the rapidity with which they could now transact business with the 'outside' as compared with the weeks and sometimes months it had taken previously."¹⁴ In subsequent years, the system expanded to Herschel Island, Fort Simpson, Fort Smith, and points beyond, reaching as far east as Baker Lake after the Second World War.

The signallers who served in these remote outposts played unsung roles as nation-builders – although they would not have seen themselves as such. Their tasks went far beyond what they learned at Vimy Barracks in Kingston. In the unpublished official history, Warrant Officer Cal Vince noted that "Northerners will ... remember Signals primarily as magistrates, Airways and Transportation agents, acting minions of the law and prime movers in community affairs." Their role in apprehending Albert Johnson, the infamous Mad Trapper of Rat River, attracted the most attention. But most of their radio traffic was intertwined with the dramatic rise in mineral prospecting and development in the interwar North, and particularly the air and water transportation companies that supplied and equipped these activities. The NWT&YRS grew in response to industry and government pressures, with new stations popping up wherever mining interests made important discoveries and budgets allowed. Operating out of tents, old Indian Agency, RCMP, or traders' buildings, or fledgling mining facilities, the Signalmen provided daily

weather reports so that forecasters could support the commercial aircraft operations expanding rapidly all over the North. The System became a communication backbone in remote areas, expanding and contracting in response to commercial and industrial development in the Yukon and the Mackenzie Valley. During the 1930s, the Hudson's Bay Company (HBC), RCMP, aircraft companies, sawmill operators, fur traders, and private mining companies at tiny, isolated settlements installed high-frequency (HF) equipment to reach the nearest station and thus keep in daily touch with the outside world. By 1936, the Radio System operated seventeen stations on a full-time basis, plus two sub-stations at Herschel Island and Tuktoyaktuk during the summer navigation season. This served Northern interests and stitched the North more fully into the nation, allowing the federal government to secure a more immediate grasp of what was going on in the region than ever before.¹⁵

The outbreak of war in 1939 disrupted the system. Although Northern residents had become dependent on it over the previous sixteen years, the army mobilized the communications network to put out the call for volunteers and withdrew experienced Signalmen to fulfill wartime needs in southern Canada and overseas. Stations were scaled back or closed in cases where this would not jeopardize the whole system, but the military recognized that it could not simply abandon northern needs.¹⁶ The Signal Corps provided an essential service to the Northern economy and civil society.

The Northwest defence projects that followed the United States' entry into the war in December 1941 ushered in the first wave of large-scale Northern military development. It also breathed new life into the NWT&Y Radio System, which supplied communications for the Alaska-Canada (ALCAN or Alaska) Highway, the Canadian Oil (Canol) Pipeline, and the airfields along the Northwest Staging Route.¹⁷ Ken Coates and Bill Morrison have provided definitive works on how these developments transformed the Northwest. "Almost overnight the isolation and economic depression that had gripped the region were swept away," they wrote. "The first to arrive on the scene were members of the U.S. Army Corps of Engineers, who had the responsibility for the construction of the initial pioneer road to Alaska and the preliminary work on the Canol Project. They were soon followed by a large group of civilian workers, mostly American but with a good proportion of Canadians, whose job was to bring the Army's rough road up to civilian standards, to complete the pipeline and the refinery, and to finish the other projects in the region."¹⁸ In the end, 40,000 foreign military and civilian workers smashed their way through the Canadian Northwest, changing settlement patterns in the

remote region beyond Fort St. John and awakening the federal government to its Northern responsibilities. In the east, the Northeast Staging (Crimson) Route and the massive airfield at Goose Bay, Labrador, had localized but much less sweeping impacts on the region as a whole.¹⁹

Although Prime Minister William Lyon Mackenzie King allowed the Americans onto Canadian soil with few constraints, he was always suspicious of their intentions. Worrisome reports from Malcolm MacDonald, the British high commissioner who visited the defence projects in 1943 and was alarmed at the scale of American activities, spurred the prime minister to reassert Canadian control in the Northwest. The government appointed a special commissioner, Brigadier-General W.W. Foster, to oversee the various American projects.²⁰ Then, as the war drew to a close, Canada paid the United States for all of the permanent facilities on its territory, thus ensuring full ownership. The Americans also agreed that before they began any project on or over Canadian territory, it had to be approved by the Canadian government.²¹ By 1945, most Americans had left Canadian territory, and the Northwest was more secure than ever – and more connected to the rest of North America.

Not only had Canada emerged from the war with its sovereignty intact, but American *developmental sovereignty* – to borrow William Morrison's memorable phrase²² – facilitated more ready access to the outside world. Accordingly, the new transportation hubs built in wartime helped to shape the form and pace of postwar economic and political development. Whitehorse, a small seasonal transportation town until the war, owed its political ascendance to the routing of the military highway through the southern Yukon, shifting the balance of power in the Yukon away from the "City of Gold" (Dawson) to the new transportation and military hub.²³ Similarly, Frobisher Bay (now Iqaluit) grew out of the American airbase built there during the war. These hubs would have ongoing importance in the early Cold War, and their political importance continues today.

The Alaska Highway also showed the enduring effects of wartime development. New towns, warehouses, administrative headquarters, barracks, Quonset huts, and garages now dotted the route from Dawson Creek to Fairbanks, which ran through some of the most beautiful and rugged landscape in North America.²⁴ The Canadian Army assumed responsibility for the North West Highway System (as it was renamed) in 1946. Although the general staff did not see the highway as a strategic supply route or gateway to invasion, maintaining the route allowed military engineers to practise road and bridge building at minimal cost. (Strategic planners deduced that Russia, having become a nuclear power, would not squander airborne troops on attacking the Canadian North: an

atomic bomb would have far more shock value than paratroopers.)²⁵ In short, the Northwest was a remote *defence* priority – but the Alaska Highway, now a continental transportation artery, was a *national* priority.

The army's ongoing presence continues to shape the region. Morrison has characterized the Alaska Highway as a "linear community" – a 1,200-mile village with its residents dispersed along a string of isolated highway camps operated by DND. "Although the distances were, by southern standards, extreme, people regularly traveled from one maintenance yard to the next – fifty miles or more – for casual social events and visits," he notes. "Over the years, after workers had shifted between several camps, they maintained friendships up and down the highway."²⁶ The military and civilian communities were enmeshed, with DND money flowing to help build elementary and high schools, operate the hospital, and run recreational programs.²⁷ The military was integrated into the Northwest, and the Northwest integrated into the nation, through this provision of basic northern services.

The Americans, and thus the Canadians, turned their attention even further northward during the early Cold War. The Second World War – and particularly the atomic bombs on Hiroshima and Nagasaki – demonstrated the power and significance of strategic bombing. Thus, soon after the U.S. withdrew from the Canadian North, Washington officials again pounded at Ottawa's door asking to return to build weather stations and airfields. Most scholarship has approached this subject through the question of whether continental security undermined – or threatened to undermine – Canadian sovereignty.²⁸ The state also used these Arctic security projects to gain a better understanding of the region, to explore it, and to bring it under national influence.

The idea of "civilianizing" Arctic defence projects after the war was not only a political ploy by King's Liberal government to conceal U.S. influence and avoid alarming the Soviets. It also reflected a deliberate attempt to optimize development benefits where possible. Projects like the Joint Arctic Weather Stations (JAWS) in the Queen Elizabeth Islands, conceived by the U.S. Army Air Forces and the U.S. Weather Bureau, served strategic interests related to transpolar air routes in addition to improved weather forecasting. The JAWS stations were civilian run by Canadian and American personnel, yet they served civilian and defence purposes simultaneously. The U.S. Navy and Air Force played the central role in constructing these installations and resupplying them until the RCAF, Royal Canadian Navy (RCN), and Department of Transport could take over. Over time, they became hubs for a wide range of scientific and

exploration activities in the High Arctic, including the Polar Continental Shelf Program.²⁹

As the Cold War heated up in the 1950s, the Americans sought extensive air defence systems to protect the continent's northern frontiers – or, more precisely, to secure advance warning to protect the deterrent and thus the industrial heartland of North America.³⁰ “The ghastly one aircraft, one bomb, one city algebra of the nuclear age made it inevitable that resources would have to be dedicated in the North,” Kenneth Eyre observed. “No longer was the North a strategic barrier.” He hastened to add, however, that “neither the United States nor Canada looked on the North as a *place* to be protected because of some intrinsic value. Rather it was seen as a *direction*, as an exposed flank.”³¹ From the Pinetree Line along the 50th parallel to the Mid-Canada Line, a Canadian-funded radar “fence” along the 55th parallel (using Canadian technology developed at McGill University),³² the warning network extended progressively northward. The most northern (and the most famous) was the Distant Early Warning or DEW Line, a mega-project staggering in both its scale and the speed with which it was constructed. “Stretching for 2500 miles across the Arctic, it required the biggest task force of ships since the invasion of Europe and the largest air operation since the Berlin airlift to take in the supplies,” Department of Northern Affairs and National Resources official Charles Marshall trumpeted in a 1957 magazine article. “More than 7000 men laboured through two short Arctic construction seasons to complete the work on schedule. Small wonder that many consider the project one of the most dramatic engineering achievements of our time and a milestone in the development of the Arctic.”³³

The industrial logistics associated with the DEW Line were unprecedented in the Arctic and proved a tremendous boost to northern transportation and development. “Support and re-supply vitally affect the continuous, reliable, and economical functioning of the line,” a 1955 report noted. “Because of the geographical location of the stations, all equipment, materiel, supplies, including POL [petroleum, oil, and lubricants] and sustenance items must be either flown in, delivered during the very short period of the summer by sea, or hauled laterally to a site by cat train operating in the winter season.”³⁴ Convoys of up to fifty-seven vessels and fifteen thousand men (in the case of the western sealift during the 1955 season) plied the Arctic waters,³⁵ charting the Arctic coastline and waterways through the southern islands of the Arctic Archipelago. Annual sealift operations established new sea routes, improved knowledge of ice conditions, and resupplied Arctic settlements.³⁶

Past journalists and present scholars typically fixate on questions of sovereignty vis-à-vis the United States, overlooking the vast commercial aspects of the DEW Line.³⁷ The Canadian government, conscious of nation-building possibilities, secured guarantees from the U.S. that Canadian companies could compete for contracts. Western Electric Corporation (the prime contractor) awarded Canadian companies the major construction contracts for the Canadian sections of the line.³⁸ Morris Zaslow, the dean of Canadian Northern history, wrote in his magisterial book *The Northward Expansion of Canada* that the air operations associated with the construction and operation of the DEW Line “represented an unprecedented windfall for the Canadian air industry.” Civilian companies contracted by Western Electric helped with preliminary air surveys, ground support operations, and the construction phase.³⁹ The 1955 agreement with the United States guaranteed that “Canadian commercial carriers will to the fullest extent practicable be afforded the opportunity to participate in the movements of project materials, equipment and personnel within Canada.” This proved to be a herculean task in practice. By the fall of 1956, 352,300 short tons of materiel had been delivered to the DEW Line. Aircraft were responsible for 106,000 tons, and 84 percent of the 24,612 commercial flights (covering 16.5 million miles) were Canadian.⁴⁰ It was the largest cargo airlift in the history of Canadian aviation, and the heavy volumes of air freight facilitated the rapid expansion of Canadian aviation companies. Pacific Western Airlines (eventually Canadian Airlines) and Maritime Central Airways (which became the root company for Eastern Provincial Airways) “moved from being small bush lines to large integrated national airline companies.”⁴¹

The infrastructure on the ground also transformed air travel to, from, and within the Arctic. Thanks to the DEW Line, H. LaFay told readers of *National Geographic*, a pilot could “now fly completely across the North American Arctic without losing sight of the lights of a human habitation, and rarely being more than 25 miles from an airstrip.”⁴² This significantly increased the safety margin for northern air operations generally. J.R.K. Main, in his landmark book *Voyageurs of the Air*, enthusiastically noted:

Prior to the advent of the DEWline, a flight beyond the Arctic Circle was something of an adventure: hazardous, and undertaken with some trepidation even in summer. After the baptism of complete immersion in the worst the Arctic had to offer, endured during the winters of 1955-1956 and '56-'57, catching a plane to the Arctic meant no more than catching a street car. The psychological barrier was down; the snow curtain was dissipated and the Arctic, as far as the rim of the continent,

now lies open to such development as the discovery of mineral wealth, favourable world markets, and improved methods of transportation may dictate.⁴³

The perils of Arctic flying did not disappear – as the deaths associated with the DEW Line airlift proved – but a string of manned airfields at one-hundred-mile intervals around the northern neck of the continent, new wide-band communications, and improved meteorological data facilitated Arctic resource exploration in the 1960s and 1970s.⁴⁴ Although grand prospects for resource development in the High Arctic have generated more hype than production to date, the DEW Line and associated activities laid the groundwork for the Arctic resource “feeding frenzy” that some commentators anticipate in this current century.

Perhaps the DEW Line’s most lasting nation-building contribution, however, came in drawing Arctic peoples into the web of Canadian political, economic, and cultural life. Initially, Canadian decision-makers naively believed that they could insulate Northern Indigenous peoples from the impact of this mega-project. Such was the arrogance of military modernism – the notion that the state could control environments and people and the interactions between them. Reality proved differently.⁴⁵ The DEW Line served as sites for cross-cultural interaction in the Arctic, which had a major impact on the northern peoples. Until the 1950s, the vast majority of Inuit still lived as hunters, supplementing this lifestyle with limited trapping income. Now they encountered Western culture in different ways than they had with the HBC, the missionaries, and the sprinkling of government officials who occasionally ventured into the region. The effects of even limited exposure to the nine thousand southern workers and their worldview – a number equal to the entire Canadian Inuit population at that time – cannot be overstated. More tangibly, DEW Line construction and a few operational jobs provided Inuit with wage labour for the first time. Unskilled Inuit labourers received relatively low wages by southern standards (about \$3,000/year) – but this was still much more than they could earn by trapping or traditional methods. They also received free food, housing, and oil.⁴⁶ This hastened the process of “incipient urbanization,” producing major demographic shifts across the Canadian Arctic. As Inuit moved from remote camps to take up work associated with the DEW Line, new settlements emerged at places like Tuktoyaktuk and Broughton Island (Qikiqtarjuaq), while others like Cambridge Bay and Hall Beach grew in size and permanence. In turn, settlement life changed Indigenous lifestyles, cultural dynamics, family roles, and forms of social and political leadership. While military and commercial aircraft brought the endless stream of boxes that Kevin

McMahon mentioned, new federal officials – Northern Service Officers – arrived to oversee the transition “from the stone age to the atomic age” (as the popular media liked to describe it). In retrospect, it is fair to say that the DEW Line transformed Northern life irrevocably – or at least served as the major catalyst for the fundamental transformation that occurred from the mid-1950s to the late 1960s.⁴⁷

Like most technological solutions devised to deal with security crises, the Soviet launch of Sputnik in 1957 changed the strategic equation concurrent with the DEW Line going operational. The space race was on, and intercontinental ballistic missiles (ICBMs) overtook the manned bomber as the most worrisome threat. As James Eayrs quipped, “henceforth the missile was the message.”⁴⁸ Although Inuit and other Northerners continued to work for the DEW Line (in far smaller numbers than the civilian workers flown up from southern Canada and the U.S.), it is certainly fair to observe that Northerners influenced the military far less than it influenced them. Even Trevor Lloyd, a consummate critic of bilateral defence initiatives in the postwar period, conceded in 1962 that:

Much though one may regret the reasons for its being there, and deplore the enormous cost to the community, it remains true that without the DEW Line and associated developments the hope of effective occupation of the Far North would be even more remote than today it is. Such far-ranging enterprises have made possible elaborate programmes of research and development which have speeded the solution to many problems in logistics, housing, and communication. When the military men eventually evacuate their settlements, as is beginning to happen at some arctic sites, they will leave behind them an invaluable group of well-endowed oases in the northern wilderness.⁴⁹

The DEW Line did not cease to operate, but it was scaled back in the mid-1960s,⁵⁰ and the military’s Northern footprint shrank. The Americans did not need Canadian soil for their Ballistic Missile Early Warning System (BMEWS) (although DEW Line rearward telecommunications provided essential backup), and Canada played no direct role in the cat-and-mouse game of Arctic submarine operations – even when they took place in its waters.⁵¹ After all, the RCN had turned its icebreaker (HMCS *Labrador*) over to the Department of Transport in 1957. The RCAF turned over airfields at places like Resolute Bay, Frobisher Bay, and Cambridge Bay to Transport over the following decade, the Royal Canadian Corps of Signals the remaining stations of the Northwest Territories and Yukon Radio System to that same department in 1959, and the Royal Canadian Engineers turned over the North West Highway System to Public Works

in 1963. When the military withdrew from the northern “garrison towns,” particularly Churchill and Whitehorse, the communities recoiled from “the economic multiplier effect of a reduced population, the loss of military dependants from the work force, [and] the weakening of local cultural, social and recreational organizations.”⁵² Taking stock of the situation in 1966, an unsigned report observed:

The establishment of military facilities has usually followed much the same pattern. They have been built under conditions of great urgency as “crash” programs. In the construction phase there has been significant local employment but this has been short-term, and once the facilities have become operational they have been staffed predominantly by technically trained personnel brought in from the south, except for casual labour at busy times of the year. They have ceased operations abruptly, with little or no warning.⁵³

In this respect, military development mirrored the “boom and bust” cycles typical of northern development more generally.⁵⁴ The military had laid essential groundwork, however, regardless of its gradual relinquishment of transportation and communication responsibilities to civilian control.

When Humble Oil, an American oil consortium, sent its ice-strengthened oil tanker *Manhattan* on test runs through the Northwest Passage in 1969 and 1970, the sovereignty question returned to the fore. Even if the strategic situation did not warrant operational forces in the North, did sovereignty not demand a military presence – particularly to bolster Canada’s sovereignty position on the waters of the Arctic Archipelago? Defence commentators thought so, but the lawyers at the Department of External Affairs (DEXAF) reached a different conclusion. Canada had to be able to enforce and control activities in its jurisdiction, but a symbolic presence was far less important than the functional contributions the military could make to the broad range of government responsibilities in the region. DEXAF emphasized that, before building a role for the armed forces, defence planners had to start with a coherent rationale for an increased level of military activity. Erik Wang warned that to develop any military role merely to satisfy the “optical demands” of political sovereignty “would be to build on shifting sands.... It would not be long before somebody noticed that one visit of the Governor General, accompanied by an enthusiastic press corps, can provide a sovereign presence to a remote area much more effectively and much more cheaply than 100 [Canadian Forces] surveillance overflights.” To strike home this message, he explained that “sovereignty is not a magic word which automatically requires or justifies a certain military set-piece. It is rather

the political and territorial framework within which a state exists and functions. It is not made up of, or protected by[,] symbols, tokens or gestures.”⁵⁵

Where, then, did the military fit into Northern development more broadly? Naval deployments (NORPLOYs), army exercises, and patrol overflights (NORPATs) were transient. To provide a permanent presence, the Canadian Forces set up a new Northern Region headquarters in Yellowknife in May 1970, which boasted that it was responsible for “the largest single military region in the world.” To cover 40 percent of Canada’s land mass and to “serve as a link between [the Canadian Forces] and the northern settlements in which they operate and exercise,”⁵⁶ the resources at Northern Region’s direct disposal in the early 1970s consisted of a small headquarters staff, less than two hundred active Canadian Rangers, and a few hundred personnel at communications research and radar stations.⁵⁷ At best, this was a modest contribution to nation-building.

Northern Region Headquarters recognized that it had to fit within a broader government strategy to remain relevant. The Trudeau government’s new integrated northern strategy promised, in addition to maintaining Canadian sovereignty and security, to protect the northern environment “with due consideration to economic and social development.”⁵⁸ This obligated military authorities to balance traditional security needs with socially and environmentally responsible programs. At a special facility near Inuvik, for instance, the military investigated communication difficulties in the Arctic, emphasizing that its technical solutions benefitted remote northern communities. National Defence cooperated with other government departments, such as the Department of Indian Affairs and Northern Development, to build remote airstrips throughout the Arctic and bridges to complete the Dempster Highway to Inuvik, thus facilitating year-round, community access to government administration, health services, and supplies.⁵⁹

These projects continued the military’s long history of contributing to physical infrastructure. But how could the Canadian Forces contribute to the development of *human infrastructure* – social capital in the North – so that Northerners could take their place in modern society? “The outlook of the Eskimos ... has been changing since the construction of the northern airfields, the weather and radar stations, and the D.E.W. [Distant Early Warning] Line, opened their eyes to the advantages of wage-employment,” anthropologist Diamond Jenness had observed in 1964.⁶⁰ As we have discussed, the military did not have some orchestrated scheme to “civilize” the Inuit, but its activities indirectly created or exacerbated dependencies on wage employment and Western goods, encouraged the sedentarization

of the Inuit, and set up unsustainable expectations given the “boom and bust” cycles associated with defence work. In the past, it had offered programs to provide vocational training. The partnership between the Department of Northern Affairs and National Resources and Federal Electric Corporation, the major DEW Line contractor, to offer heavy equipment operator training to young Inuit men in Leduc, Alberta, was a case in point. These skills not only served them in DEW Line employment but also subsequently in the oil industry, where they enjoyed the highest-paying and -status jobs available to Inuit.⁶¹ But the military had not made any efforts to recruit northerners into the Regular Force before the 1970s, and very few northerners displayed any interest.

The defence minister now promised a major effort to increase Inuit participation in the Canadian Forces as a form of nation-building. The ensuing programs revealed an abject failure to appreciate northern realities. In addition to the extreme stresses that young northerners faced “in coping with the often conflicting demands of military and traditional culture,” the broader question remained of whether Inuit communities could afford to lose their best-educated youth to military service when political developments required their leadership at home. “Fortunate[ly] for the North as a whole,” Ken Eyre astutely noted, few Inuit pursued a military path into the Regular Force or Primary Reserves.⁶² Initiatives like the Northern Native Entry Program failed to attract many volunteers, and most Northerners who did enlist could not overcome the cultural shock and dropped out.⁶³

By contrast, the Canadian Rangers enjoyed strong Indigenous support in northern communities. This unique organization was created in 1947 to serve the postwar need for some form of defence presence in sparsely settled northern, coastal, and isolated areas which could not be conveniently or economically covered by other military forces – a mission that remains today. Most importantly, turning to unpaid volunteers already living in remote regions allowed the military to have a presence on a shoestring budget. To accomplish their mission, the army equipped each Ranger with a .303 Lee Enfield rifle, two hundred rounds of ammunition each year, and an armband. The civilian backgrounds of these “ordinary” men (there is no record of any women Rangers until the late 1980s) determined their contributions, whether they were trappers, bush pilots, missionaries, fishermen, or miners. In Indigenous communities, Inuit, First Nations, and Métis men filled the ranks – although until the 1970s, the army usually appointed a token “White” officer to lead them. Largely untrained, the Rangers’ local knowledge allowed them to serve as guides and scouts, report suspicious activities,

and (if the unthinkable came to pass) defend their communities and delay an enemy advance using guerrilla tactics – at least until professional forces arrived. In practice, they furnished intelligence reports about strange ships and aircraft and participated in training exercises with Canada's Mobile Striking Force. To hone their marksmanship skills, they were expected to hunt and feed their families. They received virtually no training.⁶⁴

After flourishing in the mid-1950s, Ottawa's defence plans overlooked the Rangers a decade later. The organization survived in some areas due to local initiative and its miniscule cost, but the "Shadow Army of the North" received little to no direction or support from military officials. The Rangers, as a national formation, was largely inactive until the early 1970s.

Then the Rangers' basic purpose was linked to the armed forces' role of supporting Canada's sovereignty. Staff from the new headquarters in Yellowknife wanted to convert them into a regular force or primary reserve unit, but these plans ran aground on the shoals of austerity in Ottawa. For all the rhetoric of a stronger military presence in the North, Ottawa was clearly unwilling to fund it significantly. The simple fact that these grand plans failed, however, explains why the Rangers took on the unique and incredibly successful grassroots form that they did. Without the resources to do much else, a few non-commissioned officers based in Yellowknife provided low-key training to newly resurrected Ranger patrols in Inuit and Dene communities in the 1970s. Soldiers had special appeal, Northerners explained, because most government workers' visits to communities consisted of a brief discussion with the local priest and HBC manager, a shopping trip at the co-op, and an early departure to a community with better accommodations. By contrast, military personnel were self-sufficient, ventured out on the land, ate country foods, spoke with everyone, and treated local people with respect.⁶⁵ Land-based training, in particular, proved highly popular. Rather than seeking to assimilate Indigenous peoples, the organization was rooted in mutual respect and cross-cultural awareness. The Rangers brought skills with them that the military valued – there was no interest in trying to make them conform to the typical army culture. Furthermore, Rangers in the North now elected their own leaders – a form of self-governance over their community-based patrols that fit with the rising tide of Indigenous political awareness at that time. As momentum built, the Rangers were again active across the Northwest Territories, northern Quebec, and Labrador.

By that point, the Trudeau government's interest in Arctic sovereignty and security had faded. Although resource exploration continued, the theoretical use of the Northwest Passage as a major transit route proved unfeasible in practice. Despite the warnings from External Affairs, National Defence had tried to develop a flag-showing role for the Canadian Forces around the protection of sovereignty, but this role was predicated on a short-term sovereignty crisis that dissipated soon after it began.⁶⁶ The military's symbolic presence was no longer a priority, so the navy stopped going North, air patrols were scaled back, and army exercises became smaller and less frequent.

It took another perceived sovereignty crisis to change this trend. When a U.S. Coast Guard icebreaker, *Polar Sea*, pushed through the Northwest Passage in 1985, resurrecting sovereignty anxieties, Brian Mulroney's Conservative government took action. It declared straight baselines around Canada's Arctic Archipelago, officially enclosing the waterways as internal historic waters. It also promised a host of big-ticket military investments to improve Canada's control over the Arctic – a reaffirmation that the Canadian Forces' mission to “show the flag” went hand in hand with political nation-building (or nation-protecting) efforts. Rob Huebert has documented these developments in detail, casting them as an *ad hoc* repackaging of previous activities and policies with some new initiatives thrown in – particularly NORAD Forward Operating Locations (FOLs) and a proposed fleet of Canadian nuclear-powered submarines.⁶⁷ These military projects and activities were not cast in Northern nation-building terms – they were about *defending* sovereignty (a problematic phrase⁶⁸ that fits with the mindset of that time).

Typically, the sovereignty crisis soon passed. We reached practical agreements with the U.S. to modernize the DEW Line into the North Warning System and to cooperate on icebreaker transits (without prejudicing our respective legal positions). Accordingly, most of the government's promised investments in Arctic defence evaporated as the economy weakened and the Cold War ended.

The one major exception was the Canadian Rangers. It was cheap, after all, and incredibly popular amongst Northerners. As the number of Ranger patrols (community-based units) spread across the Arctic, from Old Crow to Qikiqtarjuaq, the national media began to recognize the Rangers as an important grassroots example of Northerners contributing directly to sovereignty and security. The military took note. Whereas cruise missile testing and low-level flying seemed to pit Indigenous groups against the so-called “militarization” of their homelands,⁶⁹ everyone seemed to celebrate the social and political benefits of having

the Rangers in Indigenous communities. Not only were the Rangers “sensitive to the relations between people and the Arctic environment,” but they also allowed local residents to share responsibility for Canadian security.⁷⁰ After the Oka Crisis in 1990, the simple reality of having Indigenous Canadians wearing red sweatshirts adorned with maple leaves, serving in the Canadian Forces (albeit in a highly unorthodox unit), and exercising sovereignty took on heightened significance. The Inuit motto, “Canadians first, first Canadians” (coined by Jose Kusugak), struck home that there was ample middle ground in the North to build and reinforce Indigenous-military partnerships.

Over time, the Rangers evolved to make unexpected contributions to *human* development in remote communities. Beginning in the 1970s, Northerners and soldiers alike expressed a growing concern about skill fade – the erosion of those traditional skills that allowed people to safely and confidently operate on the land and waters. The “DEW Line generation,” raised in settlements, had missed traditional child-rearing on the land. Thus, when Elders passed away (or retired from Ranger service), the Canadian Forces lost access to their knowledge of the land, the seas, and the skies, and each successive generation had fewer basic survival skills. There was obvious value in having Elders train younger Rangers, as well as the value of Ranger patrols in providing resources and incentives to get people out on the land.⁷¹ Accordingly, journalists and community members applauded the Rangers’ role in teaching the military and in encouraging Elders to share their traditional knowledge with younger people *within* Indigenous communities. This was clear in the creation of a youth program, the Junior Canadian Rangers, in 1998. For peoples still dealing with the tragic legacies of residential schools, the eagerness of Indigenous communities to have military instructors come north to train their young people – and even to send their youth away to summer camp – is a resounding testament to the trust relationship that existed through the Rangers. Furthermore, some community Elders also played a direct role in identifying Ranger sergeants and master corporals who they could groom as future leaders for their communities and territorial governments. It presented a “win-win” situation for communities and for the military, which made it so popular.⁷²

In this context, the line between what is of military value and what is of national value becomes blurred. Rather than creating an organization that conformed to military rules and culture, some commanding officers of the Canadian Ranger Patrol Groups did the opposite: they bent the military to fit with Indigenous culture, selling the Ranger message to promote nation-building and cultural survival.⁷³ And it worked. As a

bridge between diverse civilian and military cultures, and between North and South, the Rangers successfully integrated national sovereignty and defence agendas with local interests. Accordingly, the number of Rangers and the geographical scope of the organization have grown continuously since the late 1980s, their footprint now extending across the provincial norths.

The concept of mutual benefit underpinned the entire organization. The positive relationship that the Rangers embody aligns perfectly with the spirit of political cooperation and national support that Ottawa hopes to foster with Indigenous communities. The connection between encouraging traditional land skills, sharing local knowledge, and sustaining military operations in remote regions has become increasingly clear.

The Rangers have attracted their highest profile when patrolling the remotest reaches of the Arctic. During these operations, Rangers have a chance to work with other members of the Canadian Forces (and foreign militaries on occasion), operate in unfamiliar environments, share skills, and build confidence. They are trumpeted as nation-builders in media coverage, showing the flag in some of the most austere and challenging conditions imaginable. Standing at the Magnetic North Pole in April 2002, Ranger Sergeant John Mitchell explained that the Rangers linked not only the whole North but also northerners with the south. "People don't realize how far we are from the nation's capital," he noted. "The Rangers make you feel more like you're a Canadian."⁷⁴

The Rangers also regularly support other government agencies in responding to the broad spectrum of security and safety issues facing isolated communities. They frequently conduct search and rescues – a subject of growing interest given the escalating tempo of activity in the North. Their leadership and training make them the *de facto* lead during states of emergency – from avalanches, flooding, extreme snowstorms, and power plant shutdowns to forest fires and water crises. Communities turn to the Rangers in times of need, and the Rangers help the government achieve its national objectives. Most importantly, their commitment does not fluctuate with the southern political winds – the Rangers are not built on the "shifting sands" of political sovereignty.

The Rangers' third broad task – to maintain a military presence in local communities – remains fundamental. A strategic review completed in 2000 confirmed the Rangers' status as an inexpensive operational resource, but the representational and functional roles that the Rangers performed in their communities went beyond simple service as "eyes and ears." They had become respected role models. Indigenous communities had suicide

rates up to seven times higher than in the Canadian population at large, and they also had higher-than-average rates of illness, family violence, alcohol abuse, and incarceration. The Rangers offered a ray of hope in an otherwise dreary picture:

By their nature, the Canadian Rangers are having a tremendous impact on the lives of the people and communities in which they are located ... They are active community members who are in a position to have a positive influence on their local environment. Rangers, in those communities where there is no other federal presence, are often perceived to be the elite of the community and are held up as role models for others. Frequently the Rangers represent the only identifiable and formed group that is readily available to the community in times of need ... The Rangers have now taken on a new role – they are educators and role models for over a thousand youth that participate in the JCR Programme. Consequently, there is beneficial value in the presence of Rangers in a community both from the perspective of enhancing the community environment as well as adding to the image of the federal government and the Canadian Forces.⁷⁵

The Rangers serve as a consistent, visible link to the state. This is nation-building at its core – and the military is embraced as a positive force by most Northerners as a result.

“If Canada’s Arctic sovereignty has a brand, it’s the red Rangers hoodie,” journalist Tim Querengesser noted in *Up Here* magazine in 2010.⁷⁶ The military does not take this symbol lightly. As I mentioned, southern academics and commentators often associate military practices (and those of the state more generally) with physical dislocation, environmental degradation, political disruption, and culture shock.⁷⁷ In the case of the Rangers, however, the interconnectedness between the military, remote communities, and Canadian society is respected as a constructive force. In the new North, it still comes down to human relationships – and the military’s roots in the Canadian North are deep.

In terms of development more generally, most politicians, Northerners, pundits, and defence planners now recognize that the Arctic is a homeland as well as a frontier. This spirit is captured in the four pillars of Canada’s Northern Strategy, where sovereignty and security have their place alongside environmental protection, sustainable development, and stronger Northern governance. Despite the emphasis on Arctic defence from 2006-08, the days of military projects leading the Northern development charge are long past – even though some commentators may seek to rekindle this role. The Canadian Forces will continue to support

nation-building, but the civilian public and private sectors now play the central role in facilitating sustainable development. When emergencies arise, the Canadian Forces will be prepared to play what is technically a supporting role in coping with and adapting to the complex challenges posed by climate change, increased ship traffic in Canada's Northern waters, and more Arctic activity writ large. In practice, it will have to "lead from behind."

So although civilian departments and agencies have assumed control of most communication and transportation facilities in the North, the military's historic footprints are still everywhere. As we have seen, defence-related activities have contributed to Northern development for more than a century, both directly and indirectly. And there is every indication that this will continue in modest form. The Canadian Forces Arctic Training Centre, co-located with the Polar Continental Shelf Program in Resolute, is a prime example of how defence investments can be leveraged for civilian benefit – and vice versa.⁷⁸ When developments do not bring obvious community benefits (like the decision to refurbish the dock at Nanisivik as a berthing and refuelling facility rather than building a port at Iqaluit), resentment now runs deep. Whether contracting satellites or civilian airlift, opportunities for public-private partnerships remain. The military played a role in laying the foundation for Northern development – it is now up to Canada, as a whole, to build upon it.

But what of Ken Eyre's major point, that "while the military has had a considerable impact on the North, the northern fact has had surprisingly little impact upon the Canadian military"? Perhaps this, too, is changing. The Canadian Rangers are clearly an exception, an unorthodox, community-based Reserve organization easily overlooked when Eyre wrote in the early 1980s but now a recognized operational asset and an unmistakable success story in capacity-building that contributes to sustainable, healthy communities. This success could not have been achieved without the military embracing and accommodating the North's diversity in unique ways.

Colonel Kevin McLeod, the commander of Canadian Forces Northern Area (now Joint Task Force North), identified in 2003 that the military's "Centre of Gravity ... is our positive relationship with the aboriginal peoples of the North. Deploying out on the land, conducting patrols, training and supporting the youth ... and being involved in the local communities, are why we are here, and this must not be forgotten."⁷⁹ Even if this is a regionalized message, it does speak to a different military philosophy than down south.

And if we return to Prime Minister Harper's quote from 2007, it is clear that there is a sense that the Arctic may be a means to drum up support for the military. For a prime minister to explicitly identify the North as his legacy project – and to sustain this interest while in office, particularly in a time of economic restraint – is truly novel. Although I argue strenuously against the probability of an Arctic conflict in the foreseeable future, the Arctic focus has encouraged Canadians to focus on the “home game” while our military recalibrates as its mission in Afghanistan winds down. How much is the North serving the military, and how much is the military serving the North? How much sustained influence the Arctic will have on the twenty-first-century Forces, in the face of budget cuts, economic and election cycles, and competing priorities, remains to be seen. The sky no longer rains military boxes as it once did, but the military's nation-building legacy – positive and negative, direct and indirect, fleeting and enduring – helps to explain how we have got to today and where we might place our emphasis in the future.

Notes

¹ For an outline of the debate over the “polar race” narrative and Canada's place in the circumpolar world, see Franklyn Griffiths, Rob Huebert, and P. Whitney Lackenbauer, *Canada and the Changing Arctic: Sovereignty, Security and Stewardship* (Waterloo: Wilfrid Laurier University Press, 2011).

² Kathleen Harris, “Laying claim to Canada's internal waters,” *Toronto Sun*, 23 February 2007.

³ Donald M. McRae, “Arctic Sovereignty: Loss by Dereliction?” *CARC – Northern Perspectives* 22, no.4 (1994-95), available online at <http://www.carc.org/pubs/v22no4/loss.htm>.

⁴ Kevin McMahon, *Arctic Twilight: Reflections on the Destiny of Canada's Northern Land and People* (Toronto: James Lorimer, 1988), 11.

⁵ Mary Simon, “ Militarization and the Aboriginal Peoples,” in *Arctic Alternatives: Civility or Militarism in the Circumpolar North*, ed. Franklyn Griffiths (Toronto: Samuel Stevens, 1992), 60.

⁶ High modernism, to borrow James C. Scott's framework, sought “a sweeping, rational engineering of all aspects of social life in order to improve the human condition.” *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: 1988), 88. See also Matthew Farish and P. Whitney Lackenbauer, “High modernism in the Arctic: Planning Frobisher Bay and Inuvik,” *Journal of Historical Geography* 35, no.3 (July 2009): 517-44.

⁷ Kenneth C. Eyre, “Forty Years of Military Activity in the Canadian North, 1947-87,” *Arctic* 40, no.4 (December 1987): 292.

⁸ Gordon W. Smith, “The Transfer of Arctic Territories from Great Britain to Canada in 1880, and some related matters, as seen in official correspondence,” *Arctic* 14, no.1 (1961): 53-73.

⁹ Edward Lester, Brereton Greenhous, and William Constable, *Guarding the Goldfields: The Story of the Yukon Field Force* (Toronto: Dundurn, 1987).

¹⁰ William R. Morrison, *Showing the Flag: the Mounted Police and Canadian Sovereignty in the North, 1894-1925* (Vancouver: UBC Press, 1985).

¹¹ On this era, see D.H. Dinwoodie, "Arctic Controversy: The 1925 Byrd-MacMillan Expedition Example," *Canadian Historical Review* 53, no.1 (March 1972): 51-65; Richard Diubaldo, *Stefansson and the Canadian Arctic* (Montreal & Kingston: McGill-Queen's University Press, 1978); Nancy Fogelson, *Arctic Exploration and International Relations, 1900-1932* (Fairbanks: University of Alaska Press, 1992); Thorleif Tobias Thorleifsson, "'Norway Must Really Drop Their Absurd Claims Such as That to the Otto Sverdrup Islands': The Sverdrup Islands Question, 1902-1930" (unpublished M.A. thesis, Simon Fraser University, 2006); and Janice Cavell and Jeff Noakes, *Acts of Occupation: Canada and Arctic Sovereignty, 1918-25* (Vancouver: UBC Press, 2010).

¹² On the idea of legibility, see Scott, *Seeing Like a State*. On this mapping process, see R.C. McNeill, "Putting Canada on the Map," *Sentinel* 6, no.3 (March 1970): 16-19, and B.W. Waugh, "Arctic Mapping," *Sentinel* 6, no.3 (March 1970): 44. Kenneth Eyre observed that "the mapping of the North carried out by the Royal Canadian Air Force and the Royal Canadian Engineers between 1947 and 1967 provides a classic example of the military establishment in peacetime undertaking projects of national development that required skills relative to military operations. When the state of the art developed to the point where a civil branch of government could take over, and when future operations could be carried on as profitable, but still reasonably economic ventures, the military gave up the role and moved on to other fields." Kenneth Eyre, "The Military and Nation Building in the Arctic, 1945-1964," in *Canadian Arctic Sovereignty and Security: Historical Perspectives*, ed. P.W. Lackenbauer, Calgary Papers in Military and Strategic Studies (Calgary: Centre for Military and Strategic Studies/University of Calgary Press, 2011), 218.

¹³ RCAF Air Force History, "Inter-War Years," excerpts from the *Handbook for Air Force Non-Commissioned Members*, <http://www.rcaf-arc.forces.gc.ca/v2/hst/page-eng.asp?id=551>. The RCAF provided seven aircraft for the expedition and set up three bases at Port Burwell, Wakeham Bay, and Nottingham Island.

¹⁴ WO1 Cal Vince, *A Short History of the Northwest Territories and Yukon Radio System* (self-published, 1960), now available online at http://www.nwtandy.rcsigs.ca/1923_29.htm#1923. The full story of the NWT&YRS remains to be written.

¹⁵ Based on Vince, *A Short History of the Northwest Territories and Yukon Radio System*. On their role in the hunt for the Mad Trapper, see Sergeant Major 'Nash' Neary, "A Northern Adventure," *Canadian Army Journal* 2, no.3 (1948).

¹⁶ John S. Moir, *History of the Royal Canadian Corps of Signals 1903-1961* (Ottawa: Royal Canadian Signal Corps Committee, 1962), 282.

¹⁷ The U.S. and Canadian governments decided in the summer of 1943 that RCCS, given its experience in northern communications and key stations, was best qualified to handle all phases of communications for the Canol project. By the end of that year, it had fourteen NWT&YRS stations in operation, "and the system once again was in the process of expansion after a four year lull." Vince, *A Short History of the Northwest Territories and Yukon Radio System*.

¹⁸ Ken S. Coates and William R. Morrison, "The Army of Occupation: Americans in the Canadian Northwest During World War II," *Journal of the West* 32, no.4 (October 1993): 9-18. For a fuller study with detailed citations, see K.S. Coates and W.R. Morrison, *The*

Alaska Highway in World War II: The U.S. Army of Occupation in Canada's Northwest (Norman: University of Oklahoma Press, 1992).

¹⁹ See, for example, Robert V. Eno, "Crystal Two: The Origin of Iqaluit," *Arctic* 56, no.1 (2003): 63-75, and Melanie Gagnon and Iqaluit Elders, *Inuit Recollections on the Military Presence in Iqaluit* (Iqaluit: Nunavut Arctic College, 2002).

²⁰ Elizabeth B. Elliot-Meisel, *Arctic Diplomacy: Canada and the United States in the Northwest Passage* (New York: Peter Lang, 1998), 43; Stanley Dziuban, *Military Relations Between the United States and Canada 1939-1945* (Washington: Office of the Chief of Military History, 1959), 138. Several scholars have speculated that the United States government had a diabolical agenda for the Canadian North. See, for example, Shelagh Grant, *Sovereignty or Security? Government Policy in the Canadian North, 1936-1950* (Vancouver: UBC Press, 1988), 185; Donald Creighton, *The Forked Road: Canada 1939-1957* (Toronto: McClelland and Stewart, 1976), 74. The American response to these Canadian initiatives, if one avoids the lure of the "conspiratorial view" of history, was not a cause for concern but cautious optimism.

²¹ Whitney Lackenbauer, "Right and Honourable: Mackenzie King, Canadian-American Bilateral Relations, and Canadian Sovereignty in the Northwest, 1943-1948," in *Mackenzie King: Citizenship and Community*, eds. J. English, K. McLaughlin, and W. Lackenbauer (Toronto: Robin Brass Studio, 2002), 154.

²² William Morrison, "Eagle over the Arctic: Americans in the Canadian North, 1867-1885," in *Interpreting Canada's North*, eds. K. Coates and W.R. Morrison (Toronto: Copp Clark Pitman, 1989), 177.

²³ Kenneth Coates and William Morrison, "The Federal Government and Urban Development in Northern Canada after World War II," *BC Studies* 104 (1994): 27-29; Morris Zaslow, *The Northward Expansion of Canada, 1914-1967* (Toronto: McClelland and Stewart, 1988), 175; and Richard Stuart, "The Impact of the Alaska Highway on Dawson City," in *The Alaska Highway: Papers of the 40th Anniversary Symposium*, ed. Kenneth Coates (Vancouver: UBC Press, 1985), 188-204.

²⁴ Coates and Morrison, *The Alaska Highway in World War II*, 179-80. For vivid descriptions of the route, see also Kenneth Coates, *North to Alaska* (Fairbanks: University of Alaska Press, 1992), 10.

²⁵ Although the army transferred an armoured car squadron and reserve force elements to the region, regional commanders pleaded for garrisons and mobile forces. Stephen J. Harris, "'Really a Defile throughout Its Length': The Defence of the Alaska Highway in Peacetime," in *The Alaska Highway: Papers of the 40th Anniversary Symposium*, ed. Ken Coates (Vancouver: UBC Press, 1985), 121, 124-27.

²⁶ William Morrison, "The 1200 Mile Village: The Alaska Highway and Settlement in the Far Northwest," paper delivered to the CHA Annual Meeting, York University, May 2006. See also Coates, *North to Alaska*, 225-32. The phrase "linear community" was first used by Ken Coates and reflects Hugh Devitt's quote in *North to Alaska*, 12, 227. Morrison notes that Indigenous people, however, rarely shared in this highway community, even though they began to abandon their river communities after the riverboats ceased and they moved closer to the highway in search of wage labour to supplement their unstable incomes from fur trading. For impacts on Indigenous peoples, see Kenneth Coates, "The Alaska Highway and the Indians of the Southern Yukon, 1942-50: A Study of Native Adaptation to Northern Development" and Julie Cruikshank, "The Gravel Magnet: Some Social Impacts of the Alaska Highway on Yukon Indians," in *The Alaska Highway*, ed. Coates, 151-87.

²⁷ Brigadier J.R.B. Jones, "The Contribution of the Armed Forces to the Economy of the Yukon" (Speech to Whitehorse Board of Trade, 12 January 1960, quoted in Eyre, "The Military and Nation Building in the Arctic," 214.

²⁸ Scholars such as Shelagh Grant have suggested that Canadian apathy in the face of American security interests threatened our sovereignty in the late 1940s. See, for example, Grant, *Sovereignty or Security?*; Adam Lajeunesse, "Lock, Stock, and Icebergs? Defining Canadian Sovereignty from Mackenzie King to Stephen Harper," CMSS Occasional Paper No. 1 (Calgary: Centre for Military and Strategic Studies, 2007), 6-7; Adam Lajeunesse, "The True North as Long as It's Free: The Canadian Policy Deficit 1945-1985" (M.A. thesis, University of Calgary, 2007), 42, 59-60; and Lieutenant-Colonel Bernd Horn, "Gateway to Invasion or the Curse of Geography? The Canadian Arctic and the Question of Security, 1939-1999," in *Forging a Nation: Perspectives on the Canadian Military Experience*, ed. Bernd Horn (St. Catharines: Vanwell Publishing, 2002), 307-32. Other historians have painted a more benign portrait of bilateral cooperation. See, for example, Elliot-Meisel, *Arctic Diplomacy*; David Bercuson, "Continental Defence and Arctic Sovereignty, 1945-1950: Solving the Canadian Dilemma," in *The Cold War and Defence*, eds. Keith Neilson and Ronald Haycock (New York: Praeger, 1990), 153-70; Lackenbauer and Peter Kikkert, "Sovereignty and Security: The Department of External Affairs, the United States, and Arctic Sovereignty, 1945-68," in *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909-2009*, eds. Greg Donaghy and Michael Carroll (Calgary: University of Calgary Press, 2011), 101-20.

²⁹ See, for example, Gordon W. Smith, "Weather Stations in the Canadian North and Sovereignty," *Journal of Military and Strategic Studies* 11, no.3 (Spring 2009): 1-63, and Daniel Heidt, "Clenched in the JAWS of America? Canadian Sovereignty and the Joint Arctic Weather Stations, 1946-1972," in *Canadian Arctic Sovereignty and Security*, 145-69.

³⁰ The essential study on this process remains Joseph Jockel, *No Boundaries Upstairs: Canada, the United States, and the Origins of North American Air Defence, 1945-1958* (Vancouver: UBC Press, 1987).

³¹ Eyre, "Forty Years of Military Activity in the Canadian North," 294.

³² I will not discuss the Mid-Canada Line, although it would be a fitting case study of military development in the provincial norths.

³³ C.J. Marshall, "North America's Distant Early Warning Line," *Geographical Magazine* 29, no.12 (1957): 616.

³⁴ "Basic Philosophy on the Operation of the DEW Line," c. 1955, LAC, RG 24, acc. 1983-84/049, box 105, file 096-100-80/9 pt.4.

³⁵ Marshall, "North America's Distant Early Warning Line," 626.

³⁶ John W. Harris, "National Defence and Northern Development: The Establishment of the DEWLine in the Canadian North" (unpublished M.A. thesis, Simon Fraser University, 1981), 100. DEW Line work also gave a tremendous boost to the Mackenzie River transportation system, particularly for the Northern Transportation Company (NTCL), which secured long-term control of resupply operations along the western Arctic and eastern Alaska coast as a result. See Robert Bothwell, *Eldorado: Canada's National Uranium Company* (Toronto: University of Toronto Press, 1984), 351-68.

³⁷ A rare exception is Noakes' doctoral dissertation examination of Defence Construction (1951) Limited, but his discussion of the DEW Line focuses on construction and equipment and provides little analysis of the airlift. Jeffrey David Noakes, "Under the Radar: Defence Construction (1951) Limited and Military

Infrastructure in Canada, 1950-1965" (unpublished Ph.D. dissertation, Carleton University, 2005), chapter 4.

³⁸ Harris notes that, by the time the DEW Line was operational in 1957, the construction phase had contributed \$180 million to the Canadian economy. Harris, "National Defence and Northern Development," 90.

³⁹ Zaslow, *The Northward Expansion of Canada*, 328. For a full discussion of this theme, see P. Whitney Lackenbauer and Daniel Heidt, "Sovereignty for Hire: Civilian Contractors and the Distant Early Warning (DEW) Line," in *De-Icing Required: The Canadian Air Force's Experience in the Arctic*, eds. P.W. Lackenbauer and W.A. March, *Sic Itur Ad Astra: Canadian Aerospace Power Studies Series No.4* (Trenton: Canadian Forces Air Warfare Centre, 2012), 95-112.

⁴⁰ Noakes, "Under the Radar," 343-44; J.R. Baldwin, Memorandum for File – DEW Line Supply Figures, 5 October 1956, LAC, RG 12, vol. 2407, file 14-13-9-1 pt.5.

⁴¹ David Neufeld, Canadian Parks Service, "BAR-1 Distant Early Warning (DEW) Auxiliary Station, Komakuk Beach, Yukon Territory," Report on file at the Parks Canada Western Arctic Field Unit, Inuvik, NT, 16-17; Alexander Herd, "As Practicable: Canada-United States Continental Air Defense Cooperation 1953-1954" (M.A. thesis, Kansas State University, 2005), 92-93. On the role of Defence Construction Canada in securing these contracts, see Noakes, "Under the Radar."

⁴² H. LaFay, "Dew Line: Sentry of the Far North," *National Geographic* 114, no.1 (1958): 146.

⁴³ J.R.K. Main, *Voyageurs of the Air* (Ottawa: Queen's Printer, 1967), 231.

⁴⁴ Less tangible but equally valuable was access to state-generated information. As Member of Parliament (MP) Frank Enfield told the House of Commons on 16 June 1955, "When private companies go up [in the Arctic] for the purpose of constructing such installations as the D.E.W. Line, all the material collected through careful research by the federal government is available free of charge ... We reap a double reward for the money spent." Canadians had a chance to "have our cake and eat it too, something we do not encounter too often." Canada, House of Commons *Debates*, 16 June 1955, 4894.

⁴⁵ The changes were subtle and unopposed by local residents. The idea of a "totalizing state" forcibly relocating Indigenous populations to serve a liberal agenda – as Frank Tester and Peter Kulchyski depict Canada in their books – is remarkably absent. More benign inducements and relationships sucked people into the vortex of military modernization. This is a theme of my larger reevaluation of Cold War Arctic projects. For a preliminary study, see Lackenbauer and Ryan Shackleton, "Inuit-Air Force Relations in the Qikiqtani Region during the Early Cold War," in *De-Icing Required*, 73-94.

⁴⁶ Harris, "National Defence and Northern Development," 181, 208. See also R. Quinn Duffy, *The Road to Nunavut: The Progress of the Eastern Arctic Inuit since the Second World War* (Montreal & Kingston: McGill-Queen's University Press, 1988).

⁴⁷ For superb discussions of these transformations, see Duffy, *The Road to Nunavut*, and David Damas, *Arctic Migrants/Arctic Villagers: The Transformation of Inuit Settlement in the Central Arctic* (Montreal & Kingston: McGill-Queen's University Press, 2002). From 1953-62, K.J. Rea noted that "the DEW Line provided twice as much labour income and almost double the amount of employment than the mining industry did" in the Canadian Arctic. K.J. Rea, *The Political Economy of the Canadian North* (Toronto: University of Toronto Press, 1968), 310. The late Robert Williamson, a long-time associate with the Arctic Institute of North America based at the University of Calgary,

noted that wage employment at DEW Line sites involved Inuit “firmly in structured patterns of time usage, in new modes of dwelling and consumption, continuous application to the same kind of work, and to the value of our more atomized and competitive society.” This new system also diminished “the technical significance of the women as busy and vital elements in the family economic team.” R.G. Williamson, “The Canadian Arctic: Socio-Cultural Change,” *Archives of Environmental Health* 17 (October 1968): 487.

⁴⁸ James Eayrs, *In Defence of Canada: Peacemaking and Deterrence* (Toronto: University of Toronto Press, 1972), 372.

⁴⁹ Trevor Lloyd, quoted in *Canadian Population and Northern Colonization*, ed. W.V. Bladen (Toronto: University of Toronto Press, 1962), 152.

⁵⁰ Nevertheless, as a federal publication noted in 1965, “The DEW Line is ... the biggest single development in the Northwest Territories and its effects have been profound. After the Canadian government it provides the largest single payroll of any Northern activity. In its build-up it has had a direct economic influence on auxiliary industries and services such as construction, food catering, communications, and transportation. However, the DEW Line’s economic impact on the overall economy of the North has been and still is far less than its important position as an employer.” *The Northwest Territories Today* (Ottawa: Queen’s Printer, 1965), 46. The DEW Line, in its modernized form as the North Warning System, remains a much reduced but ongoing economic force in the North today.

⁵¹ For an important reevaluation of bilateral relations related to submarine operations in Canadian waters, see Adam Lajeunesse, “A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986,” *Journal of Cold War History* (First article, November 2012): 1-18.

⁵² Eyre, “The Military and Nation Building in the Arctic,” 229. On the military, modernization, and urban development, see Farish and Lackenbauer, “High modernism in the Arctic.”

⁵³ “The Local Effects of Decreasing Military Interest in Northern Canada,” c. January 1966, LAC, RG 25, vol. 10364, file 27-14-8 pt.1.

⁵⁴ On this theme, see Ken Coates and William Morrison, *Forgotten North: A History of Canada’s Provincial Norths* (Toronto: James Lorimer, 1992).

⁵⁵ DEXAF, FLE to OMD, subject: DND Paper On “Canadian Defence Policy in the 1970’s,” 5 August 1970, and E.B. Wang, “Role of Canadian Armed Forces in Defending Sovereignty,” 30 April 1969, LAC, RG 25, vol. 10322, file 27-10-2-2 pt.1. For more on this theme, see Lackenbauer and Kikkert, *The Canadian Forces and Arctic Sovereignty: Debating Roles, Interests, and Requirements, 1968-1974* (Waterloo: Laurier Centre for Military Strategic and Disarmament Studies/WLU Press, 2010).

⁵⁶ Major-General David Huddleston in *The Arctic: Choice for Peace and Security*, ed. Thomas R. Berger (West Vancouver: Gordon Soules Book Publishers, 1989), 179. See also G.G. Bell, “The Armed Forces and the Civil Authority: Aiding National Development,” *Behind the Headlines* XXXI, no.7-8 (December 1972).

⁵⁷ Ron Purver, “The Arctic in Canadian Security Policy, 1945 to the Present,” in *Canada’s International Security Policy*, eds. D.B. DeWitt and D. Leyton-Brown (Scarborough: Prentice-Hall, 1995), 87-89; Eyre, “Forty Years of Military Activity,” 297.

⁵⁸ See Department of Indian Affairs and Northern Development (DIAND), *Northern Canada in the 70’s* (Ottawa, 1970), and *Canada’s North, 1970-1980: Statement of the Government of Canada on Northern Development in the ‘70s* (Ottawa, 1972). The four pillars of this policy bear striking resemblance to those of the current Northern

Strategy. For a comprehensive reflection on the overlapping aims between DIAND and DND in this era, see James Scott Bryce, "Security Considerations in the Canadian Arctic" (M.A. thesis, Queen's University, 1975).

⁵⁹ See Lackenbauer and Kikkert, *The Canadian Forces and Arctic Sovereignty*, 313-63. In the 1970s, the Royal Canadian Engineers built bridges to span the Ogilvie and Eagle Rivers to complete the Dempster Highway connecting Dawson, Yukon, to Inuvik in the NWT – thus forging a year-round link between the communities of the Mackenzie River delta and the Alaska Highway system. The remote airfield project was part of an overall federal program to improve airfields throughout the North. DND acted as the contractor at Whale Cove, Cape Dorset, Pangnirtung, Pond Inlet, Igloodik, Spence Bay, and Eskimo Point, completing all of the projects by 1979.

⁶⁰ Diamond Jenness, *Eskimo Administration: II. Canada* (Montreal: Arctic Institute of North America, 1964), 97.

⁶¹ Ishmael Alunik, Eddie Kolausok, and David Morrison, *Across Time and Tundra: The Inuvialuit of the Western Arctic* (Vancouver: Raincoast Books, 2003), 166-67; Charles W. Hobart and George Kupfer, "Work Adjustment of Inuit Workers to Oil Exploration Employment," *Western Canadian Journal of Anthropology* 4, no.3 (1974): 85.

⁶² Kenneth C. Eyre, *Custos Borealis: The Military in the Canadian North, 1898-1975*, ed. P. Whitney Lackenbauer (Peterborough: North American and Arctic Defence and Security Network, 2020), 226, <https://www.naadsn.ca/wp-content/uploads/2020/02/custos-borealis-eyre-lackenbauer-NAADSNweb-jan20.pdf>.

⁶³ Lieutenant-Colonel J.M.M. Savard, Acting Director of Recruitment and Selection, Recruitment Directive 10/90: Northern Native Entry Program [NNEP], 30 January 1990, DND file 5675-4 (DRS).

⁶⁴ For a detailed study of the Rangers, see P. Whitney Lackenbauer, *The Canadian Rangers: A Living History* (Vancouver: UBC Press, 2013).

⁶⁵ See, for example, Capt. D.C. Jones, "NRHQ Training Report: Ranger Training, Holman, Victoria Island, 31 July 71--14 August 71," 20 September 1971, DND, Canadian Rangers National Authority, file "Canadian Rangers, 1971."

⁶⁶ Eyre has shown that the government not only avoided stationing Regular Forces in the North, but it did not obtain any new equipment. "In the 1920s, Canada established sovereignty in the Arctic with a symbolic presence of the Royal Canadian Mounted Police," he observed. "In the 1970s, Canada prepared to protect that same sovereignty with a symbolic presence of the Canadian Armed Forces." An important difference, however, was that the southern military units that operated in the North were transient and did not enjoy the focused, functional tasks that the RCMP had earlier. Eyre, "Forty Years of Military Activity," 297.

⁶⁷ Rob Huebert, "A Northern Foreign Policy: The Politics of Ad Hocery," in *Diplomatic Departures: The Conservative Era in Canadian Foreign Policy, 1984-93*, eds. N. Michaud and K.R. Nossal (Vancouver: UBC Press, 2001), 84-112. On the submarine program, see Adam Lajeunesse, "Sovereignty, Security and the Canadian Nuclear Submarine Program," *Canadian Military Journal* 8, no.4 (Winter 2008): 74-82.

⁶⁸ See P. Whitney Lackenbauer, "Research Note: The Role of the Canadian Armed Forces in Defending Sovereignty," *Journal of Military and Strategic Studies* 11, no.3 (Spring 2009); Lackenbauer, *From Polar Race to Polar Saga: An Integrated Strategy for Canada and the Circumpolar World* (Toronto: Canadian International Council, 2009), 21-22; and Lackenbauer and Kikkert, *The Canadian Forces and Arctic Sovereignty*.

⁶⁹ See, for example, Frances Abele, "Confronting 'harsh and inescapable facts,'" in *Sovereignty and Security in the Arctic*, ed. Edgar Dosman (London: Routledge, 1989), 189.

⁷⁰ Quoted in Richard Langlais, *Reformulating Security: A Case Study from Arctic Canada* (Göteborg, Sweden: Department for Interdisciplinary Studies of the Human Condition, Göteborg University, 1995), 151-53, 155-56, 190, 236.

⁷¹ "I've had people that didn't know how to make a snow block, didn't even know how to try to start an igloo," Ranger Sergeant Solomon Voisey from Whale Cove (Tikiraqjuaq) explained to reporter Bob Weber in 2004. Voisey estimated that less than 5 percent of Rangers younger than twenty-five possessed much traditional knowledge. Even older people used their skills less frequently; without more resources to facilitate the sharing of knowledge, Voisey predicted that traditional land skills would gradually die out. Bob Weber, "Rangers Less at Home on Their Range," *Globe and Mail*, 9 August 2004, A4.

⁷² Lieutenant-Colonel Rory Kilburn, interview with author, Yellowknife, NWT, 22 March 2000. With no mandatory retirement age in the North, some Rangers serve well into their seventies and eighties.

⁷³ See, for example, "3 CRPG Briefing Working Group Nov 00," Canadian Ranger National Authority (CRNA), f. "Rangers 2001"; "3 CRPG Briefing to CRNA WG," October 2008. Copies provided by CRNA.

⁷⁴ "True North Strong, Free Thanks to the Rangers," *Toronto Star*, 11 April 2002. Since 2007, Rangers participate in three major annual exercises: *Nunaliut* in the High Arctic (which is going on right now), *Nunakput* in the Western Arctic, and *Nanook* in the Eastern Arctic.

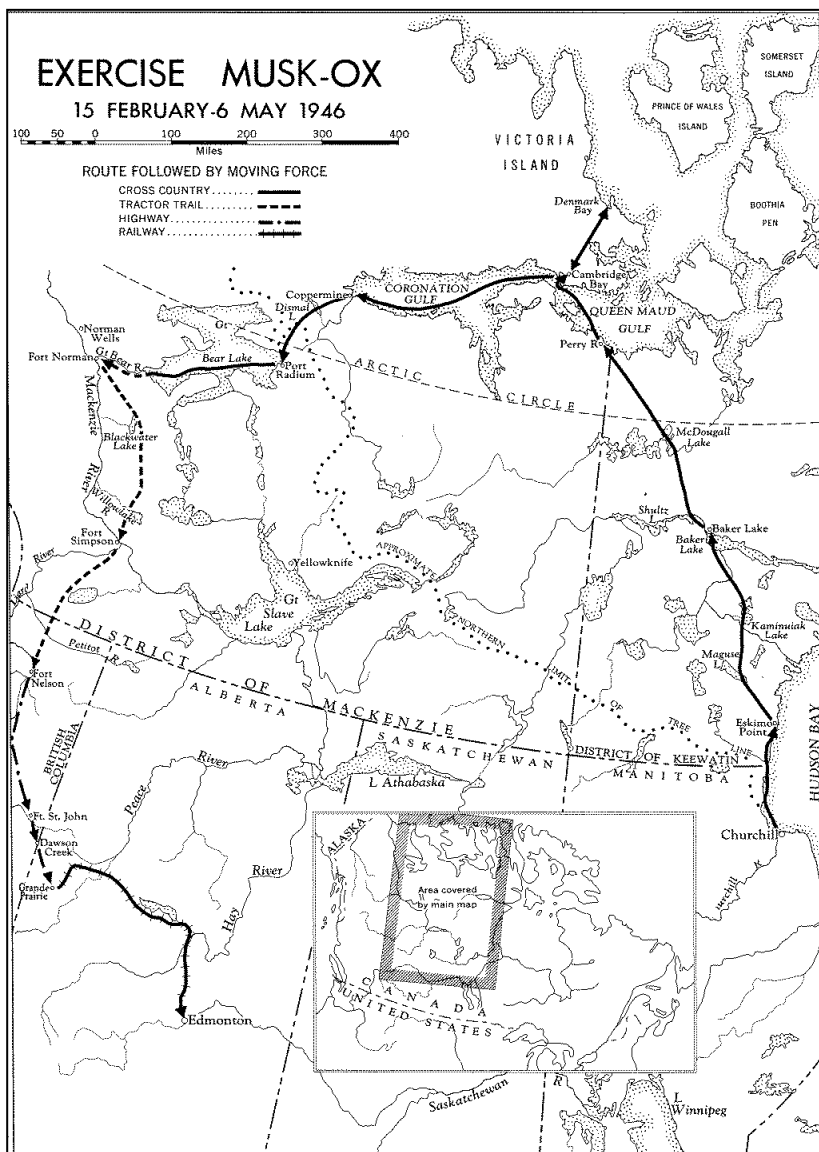
⁷⁵ Director General Reserves and Cadets, "CAN RAN 2000: A Review of the Canadian Rangers and of the Junior Canadian Rangers," 27 January 2000, 16, 49.

⁷⁶ Tim Querengesser, "Embedded with the Canadian Rangers," *Up Here* (October/November 2010), 24.

⁷⁷ See, for example, Abele, "Confronting 'Harsh and Inescapable Facts,'" 189, and Simon, "Military and the Aboriginal Peoples," 60.

⁷⁸ This also avoids the "empty building" syndrome associated with the Forward Operating Locations (FOLs). I have heard community members express their frustration at NORAD infrastructure sitting largely vacant while communities face acute housing and other infrastructure shortages.

⁷⁹ Canadian Forces Northern Area [CFNA], Operations and Training Directive 2002/03, June 2002, file NA 4500-1 (Comd).



2

Lessons in Arctic Warfare: The Army Experience, 1945-55

P. Whitney Lackenbauer, Peter Kikkert, and
Kenneth C. Eyre*

In the fall of 1949, the scenario imagined, the armed forces of a powerful aggressor nation successfully struck and secured the Hawaiian Islands. As Washington concentrated its forces to retake Hawaii, the enemy found a weak point in the defences of the United States: Alaska, the relatively undefended attic to the North American continent. On 1 December, in a series of lightning strikes, the enemy forces seized Anchorage and drove through light American resistance to capture Fairbanks, Northway (southeastern Alaska), and other strategic points. After consolidating their position, they prepared to move southwards along the Alaska Highway towards the undefended Canadian border. Like the tip of a spear, the highway could carry these units all the way to the heartland of North America.

The invaders, however, remained in a weakened and vulnerable state until they solved the problems of supply and build-up that afflicted any force operating in the northern environment. With this in mind, the Canadians and Americans hastily organized a counterattack, codenamed *Sweetbriar*, to drive the weak aggressor forces off the continent. By the end of December, a joint Canadian-U.S. force had been mobilized, airlifted, and concentrated in the small Yukon town of Whitehorse. Their mission was simple: drive the aggressors north-westward and seize and hold the airfield at Northway. From this base, future air, airborne, and ground

* Originally published in *Canadian Armed Forces Arctic Operations, 1945-2015: Historical and Contemporary Lessons Learned*, eds. P. Whitney Lackenbauer and Adam Lajeunesse (Fredericton: Gregg Centre for the Study of War and Society, 2017), 47-104.

forces could launch a counteroffensive on the Fairbanks area. The first step was to halt the enemy's advance south along the Alaska Highway.

On 13 February 1950, with the temperature dropping below -30°C and winds gusting to twenty miles an hour, Companies A, B, and D of the Princess Patricia's Canadian Light Infantry (PPCLI) moved out of Whitehorse in the first allied move against the aggressor force. In the vanguard were dozens of white-camouflaged Penguins (armoured snowmobiles) and trucks, led by winterized reconnaissance jeeps. While poor visibility kept air elements grounded, the Canadians saw no sign of the enemy as they plunged northwards on the highway. Contact was finally made at 0100 hours on 14 February when a PPCLI patrol ran into a small reconnaissance unit manning a roadblock on the north side of the Donjek River. At 1100 hours, the PPCLI rolled across the river, expecting some kind of resistance, but they saw little sign of the enemy. The next day, fearing he had overextended his force, the Canadian commander, Lieutenant-Colonel Donald Cameron, pulled his men back across the river and established a defensive perimeter, only to face heavy air attacks and observe the aggressor forces massing for an attack on his position.

At this critical juncture, an American combat team moved out on a two-hundred-mile, all-night march to reinforce the Canadians. They arrived in the early hours of the morning. Both sides sent out patrols to probe enemy positions, and frequent firefights erupted along the line. On 17 February, the allied force launched a heavy assault on the enemy's position. Led by the PPCLI, the allies pushed across the Donjek and forced the enemy to withdraw – sustaining heavy casualties in the process. Pushing the enemy back and installing defensive positions on the north bank of the White River, the allied forces attacked across the river two days later and rolled up the enemy line with the help of an aerial attack. With the aggressor forces retreating in disarray, the allies liberated Snag Junction without resistance. On 23 February, assisted by an airborne drop of a company-sized assault force from the PPCLI, they retook the strategic Northway airfield.¹ In the ensuing days, the enemy was on the run, and observers noted that Alaska would soon be back in American hands.

This scenario was staged, of course. Nonetheless, Exercise *Sweetbriar* was a success in demonstrating the joint capabilities of Canadian and American army and air units to respond to a Soviet incursion in northern North America.² Historians have debated the perceived threat to the North American Arctic in the early Cold War and its strategic implications for political, diplomatic, and military considerations of sovereignty and security. While some Canadians tended to worry less about a ground attack in the Arctic than their American counterparts in the early postwar

era, planners still recognized some degree of threat and noted that “prudence necessitated caution.”³ Dr. Omond Solandt, the head of the Canadian Defence Research Board, noted in 1948 that “everybody knows it’s impossible to fight a war in the Arctic, but we have to prepare for the man who doesn’t know it’s impossible.”⁴ After all, the Americans insisted upon some form of effective ground response in the North to secure the continent. While historian Bernd Horn depicts the Mobile Striking Force (MSF) as a “paper tiger” and a “marriage of convenience” borne of Canadian austerity and paranoia about sovereignty (rather than security),⁵ our intention is to assess the lessons that the Army *did learn* in the late 1940s and 1950s rather than debate the force’s practical utility as an instrument for kinetic operations. After all, a land-based, Cold War adversary never attacked the Canadian North, so the plans and preparations were never tested in practice.

The Canadian Army had developed equipment and tactics for Arctic and Subarctic operations since the Second World War and, supplemented by joint exercises like *Sweetbriar*, contemplated and practised how to live and operate in northern conditions. Unlike *Sweetbriar*, most northern exercises were small in scale, with short durations and limited aims, often “more in the nature of trials than tactical manoeuvres.”⁶ Nevertheless, from these activities the Army gleaned valuable “lessons learned” that informed the planning and execution of subsequent northern exercises and operations.

While lessons were often grouped under the general banner of “northern” operations, the Army also recognized an important distinction between the Arctic and Subarctic regions. These zones can be delineated in several ways,⁷ but a summary of lessons learned produced in the 1950s simply explained that, “for military purposes, it is more convenient to use the tree line as the dividing line between the two.” The Arctic – the barren region north of the treeline – “skirts the north coast of Labrador, crosses Northern Quebec, and stretches northwest from the coast of Hudson Bay, in the neighbourhood of Churchill, [Manitoba,] to near the mouth of the Mackenzie River.” The Subarctic – the wooded, scrub-covered region below the treeline – encompassed northern Manitoba and Saskatchewan, parts of the Northwest Territories, the mountains of northern British Columbia, and Yukon. Within these general ecozones, tremendous topographical diversity shaped operational possibilities.⁸

The exercises also revealed the critical distinction between *winter* warfare and *Arctic* warfare, concepts that commentators frequently conflated at the time (and often continue to conflate today). During the Second World War, the Canadian Army was extensively engaged in the

study of the techniques of winter warfare, often in or on the fringes of the Subarctic. In the face of an emerging Soviet threat immediately after the war, the tendency for some analysts to simply equate winter operations to northern operations represented a fundamental analytic flaw.⁹ Ignoring the other seasons neglected an important range of problems that had to be identified and solved before the Army could claim to have a fully operational capability in the North. Furthermore, one could not appreciate the full range of challenges associated with operating beyond the treeline, or even in remote Subarctic areas, without actually spending time in those areas. As practitioners discovered, preparing for winter warfare at military training areas in the provincial norths or near major transportation arteries did not readily translate into successful operations in Arctic or isolated Subarctic settings. The challenges of geography, environmental conditions, and limited infrastructure all had to be experienced first-hand, and evolving concepts and doctrine had to be tested on the ground.¹⁰

While this chapter cannot cover the full breadth of operational lessons learned between 1945 and 1955, it explores the Canadian Army's attempts to secure a better knowledge of the characteristics of northern warfare through training exercises designed to "improve army tactics, techniques, and procedures for living and fighting in the North."¹¹ Although participants in northern exercises in the winter fixated on the extreme cold, high-level planners began to recognize that the most significant military characteristics of the North for operations in all seasons were isolation, the vast distances involved, the lack of transportation infrastructure, and the limits these variables imposed on military mobility. Post-exercise reports highlighted the importance of strategic and tactical mobility as a technical problem that had to be resolved to facilitate combat manoeuvre and logistic support, and the search for solutions constituted much of the work done at the Joint Services Experimental Testing Station at Fort Churchill.

As the northern exercises continued, it became apparent to the Army that adequate training and the preparation of troops for "hard living" were essential elements in the maintenance of mobility and effective operations during deployments in the Arctic and Subarctic. Regardless of the level of training acquired by soldiers prior to northern deployments, the Army recognized that, far more so than in temperate zones, success in the North depended on the most careful and detailed planning possible. Oversights that could be rectified in southern contexts could have disastrous consequences on northern operations.

Even the most careful planning, however, could not fully resolve one of the central problems that afflicted northern operations: morale. Perhaps

the most threatening enemy that the Army had to face on every northern deployment was what the Americans labelled the “Arctic goblin”¹² – the fears and misconceptions that soldiers had about the northern environment and the hardships they would face there – which damaged morale, reduced motivation, and diminished performance. Although training, correct information, general familiarization, and a soldier’s faith in his clothing and equipment could weaken the “goblin,” the Army concluded that the key to its defeat was superior leadership in the field. In northern operations, junior officers and non-commissioned officers (NCOs) had to take on more responsibility than usual to ensure that the morale and performance of their soldiers remained at a high level.

Over time, the lessons derived from northern training and exercises paid dividends. By the mid-1950s, the Canadian Army had made great strides in preparing to face the challenges of Arctic and Subarctic warfare. Nevertheless, the Army still recognized the need for more regular, consistent, and applied experience on the ground to achieve full operational effectiveness.

Setting the Stage: The Second World War

The global nature of the Second World War generated a growing awareness in Canada that winter and northern warfare was no longer something that could be overlooked. In his landmark 1940 study on *The Military Problems of Canada*, historian C.P. Stacey dismissed any threat to the dominion from the north, thanks to “those two famous servants of the Czar, Generals January and February, [who] mount guard for the Canadian people all year round.”¹³ Within a year, however, the Russo-Finnish War and the German campaigns in Russia prompted professional soldiers to seriously consider the challenges of mounting military operations in winter.¹⁴ Canada leapt into the winter warfare ring in 1941 with a training pamphlet on *Instructions for Winter and Ski Training*, focused mainly on the problems of cold and mobility. This quaint, even naive publication suggested that “the object to be achieved in winter ... training is to enable the soldier to remain as effective in winter as in summer.” It purported that the solution simply lay in using skis to maintain mobility, and clothing and shelter to protect against the weather. Amongst a host of problematic insights, it directed soldiers to briskly rub frostbitten limbs with snow to restore circulation. “If after 12 hours there is no result,” it noted in classic military understatement, “it is a sure sign of gangrene and that is a case for the doctor.”¹⁵

Worries over the capability of the Canadians and Americans to respond to an enemy attack in the North emerged during the Second World War, and Canada led her Western allies in the development of

specialized equipment and techniques for winter warfare.¹⁶ The Canadian Army opened a winter warfare school in Petawawa, Ontario, during the winter of 1941-42, where it conducted experiments on the effect of snow and cold. Researchers tested power-driven toboggans and adopted adaptor kits to “arcticize” vehicles so that they could continue to operate at temperatures as low as -40°C. In 1942, the genesis of Operation *Plough* kindled Allied interest in winter operations,¹⁷ and Canada continued to press on with various experiments even after that plan was scuttled. At Shilo, Manitoba, the Army experimented with vehicles and weapons in extreme cold, tested transportation capabilities across ice and snow, and developed special clothing for both dry and wet cold. By the end of winter 1944, the Canadian military had developed a substantial body of technical knowledge and special equipment related to winter warfare.¹⁸

By the winter of 1944-45, the Western Allies realized that no special winter warfare skills would be required in order to win the wars in Europe or the Pacific. Accordingly, the U.S. Army’s interest in northern operations diminished. Nevertheless, Canada pressed on with developmental work, and the Canadian General Staff proposed “collective and tactical winter warfare tests with skeletonized formations of all arms and services.”¹⁹ Britain and the U.S. agreed and committed a handful of observers to the three exercises that Canada conducted that winter: *Eskimo*, *Polar Bear*, and *Lemming*.²⁰ Through these wartime exercises, the Canadian Army conducted tactical manoeuvres in the North for the first time.

Conducted in January and February 1945, Exercise *Eskimo* involved 1,750 men manoeuvring in frigid temperatures in northern Saskatchewan to counter a hypothetical Japanese incursion into northwestern Canada. Army planners hoped the exercise would test for “variations from the accepted tactical doctrine which will be caused by the winter conditions of snow and extreme cold,” while determining the limits of mobility of a skeleton brigade group moving in the boreal forest beyond a railhead or staging base.²¹ Observers found that the dry cold and terrain of northern Saskatchewan produced no particular problems that could not be coped with “given adequate equipment and training,” but they never specified what this actually entailed. To maintain mobility in the kind of environment in which *Eskimo* occurred, observers stressed that road building equipment and personnel would be required, along with sufficient transport capacity to move all the survival paraphernalia required for winter warfare.²²

In February and March, a comparable exercise, codenamed *Polar Bear*, was held in the wet-cold conditions of northern British Columbia, with 1,150 Canadian soldiers struggling through the deep snow and rugged

terrain to counter a hypothetical Japanese force that had landed at Bella Coola.²³ *Polar Bear* represented the most challenging of the three exercises in that it encompassed a wider variety of terrain and temperature than did the other two. The forces involved experienced temperatures ranging from -3.1°F to -54°F, snow conditions that went from none on the coast to over six feet in the interior, and terrain that varied from rolling plateaus with a limited road grid to mountains where passable routes were limited to austere trails. These varying conditions imposed an additional strain on the participating troops in that the different terrain and climates involved all demanded different equipment, clothing, and techniques.

The lessons learned and the doctrinal points established after *Polar Bear* emphasized the heightened importance of logistical support, mobility, and specialist training compared to in conventional operations. Although observers found no need to modify tactical doctrine because of the terrain and climate, they argued for the adoption of special measures so that troops were in a position and a physical condition to fight at the appropriate time. The exercise analysis emphasized that the strain imposed on troops by deep snow, rough terrain, and cold necessitated an extensive reliance upon transport. Troops simply could not haul their own equipment and survival gear and still be expected to fight. Problematically, combat operations in isolated cold areas of the coast would be dependent upon a single road at best and on a mountain track at worst. Post-exercise studies highlighted that where mechanical transport could not go, horses often could; hence, horse transport (particularly in artillery units) was deemed essential. Nevertheless, observers realized that reliance upon a single line of communication, particularly when that line was subjected to the extreme stress of the break-up season, might spell disaster for a force in contact with the enemy. Reliance upon air resupply proved to be both practical and essential. Observers concluded that it was a comparatively simple task for troops to build advanced air strips on frozen lakes along the line of march. Nevertheless, for the Canadian Army's leadership, *Polar Bear* underlined the full magnitude of the problems of movement and supply involved in remote northern operations, and the realization grew that troops engaged in winter operations would inevitably spend the vast majority of their time and energy simply surviving.

Named after the diminutive Arctic mouse, Exercise *Lemming* lived up to its name in that it was by far the smallest and most northerly of the three exercises. Between 22 March and 6 April 1945, a party of twelve men, equipped with two Canadian armoured snowmobiles, two American Weasels, and two American M7 half-tracks, penetrated into the barrens from Churchill to Eskimo Point, NWT (now Arviat, Nunavut), turned

inland to the half limit of their fuel, and then returned to Churchill. *Lemming* was unique in its execution in that, unlike the others, the moving force operated entirely self-contained and did not rely upon a line of communication for daily resupply. The exercise planners hoped that the expedition would provide “non-tactical” information that would help round out the winter doctrine that the Army was developing from its other wartime exercises. The terrain encountered over sea ice and the barrens was radically different from that met by the other formations farther to the west. The exercise provided a means of evaluating the utility and reliability of over-snow vehicles in the Arctic and gave an opportunity for the Army to examine the barren grounds with a view to holding a major exercise there the following winter.²⁴ While the requirements of maintenance and rest meant that the force only moved for a total of ten days, the participants found movement to be surprisingly easy, with the force covering a total distance of 653 miles – including an impressive 113 miles on its best day.²⁵

The post-exercise mobility analysis developed what could be called “the North African analogy.” Observers concluded that military operations in the barrens were as feasible as they had proven to be in the Libyan desert during the war. The study made the important point that operational conditions on the barrens were as different from operations in the boreal forest as was the variance between operations in the North African desert and sub-Saharan jungle. Given the virtual unfettered scope for manoeuvre on the winter barrens, the report concluded that “it would therefore seem desirable that for defence purposes Canada should develop further over-snow vehicle types and train personnel to operate in these regions.”²⁶ The report on *Lemming* further noted that the training and equipping of men to operate in the Arctic presented a different set of requirements from those encountered in winter operations within the treeline. Key personnel had to be trained in route finding and navigation in the poorly mapped and featureless Arctic. Special clothing, training, and life support equipment had to be provided to permit troops to cope with the Arctic wind. The matter of vehicular mobility was given close attention in the exercise report, which concluded that a seven-hundred-mile unsupported range was a reasonable capability for Arctic operations. Neither the Canadian armoured snowmobile nor the American Weasel was found to be completely acceptable, but a series of recommendations were made to improve their overall capability.²⁷

By the end of the winter of 1944-45, the Canadian Army had taken major steps forward in consolidating its knowledge and capability for operations in the winter. The wet and dry colds of the boreal forest had

been met and survived. Troops had ventured into the formerly forbidding barren lands. Although these exercises were tough on men and equipment, the Army had derived significant lessons about the feasibility of northern operations. These exercises, coupled with technological developments, led defence planners to claim “that the inaccessibility of the Arctic is just another myth, and, providing supplies are ensured, operations on the barren grounds ... can be as unhindered as operations on the Libyan Desert.”²⁸ The Exercise *Eskimo* report noted that 83 percent of Canadian territory was classed as Arctic or Subarctic and suggested that any time invested in cold weather operations was well spent. All of the Canadian efforts to this point, however, had been devoted to the mastery of *winter warfare*, and the notion of northern operations had been only peripherally addressed. Importantly, the wartime exercises had not exposed personnel to the extremes of climate that were to be expected during deployments in the Far North. As a result, the Army concluded that none of the exercises could be considered “a final test of efficiency of the fighting man under arctic and sub-arctic conditions.”²⁹

The 3,200-Mile Test: Exercise Musk Ox

Exercise *Musk Ox* straddles the hazy temporal boundary that marks the beginning of the Cold War. Historically, the exercise should be viewed as the final phase of the winter exercises conducted by Canada during the war. *Eskimo*, *Polar Bear*, and *Lemming*, however, occurred as world-shaping events played to their ultimate conclusions in Europe and Asia, and they received little publicity. The following winter, the world was at peace, and *Musk Ox* unfolded in the full glare of national and international press coverage.³⁰ Although the primary goals of the exercise (to “study movement and maintenance in differing cold weather conditions”) were modest, the proposed plan to move a mechanized force over three thousand miles across northern Canada, relying chiefly on air resupply, caught the attention of Canada and the international defence community.³¹

In essence, the Canadian military conceived of *Musk Ox* as a “non-tactical exercise,” and the government, when questioned in the House of Commons, emphasized the non-military, scientific aspects of the expedition. Douglas Abbott, the Minister of National Defence, explained that “the benefits derived from it may well be of greater civilian value than military value, although it is hoped that they will be both.”³² The specific subjects to be studied during the trip included techniques of army-air force cooperation under varying conditions of terrain and weather. The exercise members were also to look into several aspects of northern movement including the use of LORAN (Long Range Aid to Navigation)

and the astro-compass for ground navigation. In the realm of pure science, the Canadian government asked the participating troops to make magnetic and auroral observations, collect snow and ice data, and record the flora and fauna they encountered.

From its onset, the exercise revealed the low tooth-to-tail ratio of northern operations, with a great disparity in size between the small group that made the voyage and the large support elements that made it possible. The Moving Force numbered only forty souls (including British and American observers and Canadian civilian scientists), operating a dozen over-snow vehicles. A special Royal Canadian Air Force (RCAF) squadron operating nine aircraft was formed and trained for the unique task of providing aerial resupply to the Moving Force. The exercise required over two hundred additional soldiers to man a base camp exclusively dedicated to providing support for a platoon-sized force operating in a non-tactical setting.

Preliminary winter training for the exercise began with a month-long concentration at Shilo, Manitoba, followed by an additional six weeks at Churchill (the starting point for the expedition). During this portion of the work-up phase, all members of the Moving Force qualified as snowmobile drivers, while undertaking supplementary training in navigation, shelter building, and a host of other Arctic skills. Short patrols into the barrens served to confirm newly acquired skills and unite the group into an efficient team. On 15 February 1946, the Moving Force began its 3,200-mile journey. Its route took it north to Eskimo Point and then west and north via Baker Lake and Perry River to Cambridge Bay. Here the force rested and explored for ten days before continuing on the Coppermine and thence south through Port Radium, Tulita (Fort Norman), and Fort Simpson to the Alaska Highway at Fort Nelson. From Nelson, the Moving Force intended to press south along roads to the final destination at Edmonton. Dust, however, did what cold, snow, forest, and river could not – stop the snowmobiles. The vehicles were loaded onto rail flat cars, and the convoy rolled into Alberta's capital after eighty-one days on the trail.³³

The public and military reaction to *Musk Ox* blew the solid research accomplishments of the exercise beyond reasonable proportions. Commentators in Canada and abroad persisted in ignoring the often-repeated Canadian government claims that *Musk Ox* was a small non-tactical exercise designed to work out several technical problems related to military operations in the winter and to support certain limited scientific experiments. One French military writer even went so far as to claim that “since World War II two events have held the interest of

military circles--Bimini (referring to the American nuclear tests in the Pacific) and Operation Musk Ox in the Canadian Far North."³⁴ American newspapers gave extensive coverage to *Musk Ox*, and headlines such as "U.S., Canada Plot Far North Defence"; "U.S., Canada to Prepare A-Bomb Defence in Arctic"; and "U.S. and Canada Join to Guard Polar Area" were common. While articles noted that the expedition had scientific as well as military objectives, the former were given scant attention in newspaper articles and editorials. The basic theme was that the development of long-range bombers had made North America vulnerable to an attack over polar regions, and that the development of an army combat capability in the North would in some way allow the North American allies to defend against such an attack.³⁵

An Arctic Battleground?

For American defence planners, *Musk Ox* proved that military operations in the Far North were possible – albeit unlikely.³⁶ Furthermore, the Americans understood that if they were slightly behind the Canadians in terms of Arctic capability, they were miles behind the Soviets, who had fought extensively in northern conditions during the Second World War. Given these considerations, strategists deduced that Soviet ground forces posed a limited threat to the Arctic approaches of North America in 1946. The problem of resupply in the Arctic environment made it unlikely that any formidable or sizeable force would attempt to operate in the region. While American planners worried about possible small-scale incursions into the region, they did not consider it a "gateway to invasion." Many areas in the Arctic were suitable for lodgement by specially trained enemy units, however, which could be used to base long-range weapons and airborne forces for strikes on the North American heartland. Soviet Tu-4 bombers, which lacked the range to strike at the United States on anything but a one-way mission, could use these bridgeheads as forward bases to refuel and rearm. Furthermore, the Soviets had the airborne forces, Arctic-trained troops, and transport aircraft required to make this theoretical scenario at least possible,³⁷ and continental air defences were minimal before the Distant Early Warning (DEW) Line and the creation of the North American Air Defence Command (NORAD).³⁸ As a result, American defence planners concluded that Soviet air-transported forces posed a possible threat and the continent needed to be defended against them. This required immediate training, for the Americans still knew little about Arctic and Subarctic warfare, despite having invested millions of dollars on wartime programs.³⁹

By contrast, historian Bernd Horn has argued that many Canadian officials considered the threat of a Soviet ground attack in the Arctic to be

unrealistic. Canadian intelligence estimates often disagreed with the American assertion that the Soviets could seize objectives in Alaska, Canada, or Labrador from which they could launch strikes against targets in North America.⁴⁰ Army appreciations noted that the chance of enemy airborne attacks was slight because of the problems with resupply and re-embarkation, as well as the lack of fighter support. On the other hand, *Musk Ox* and the wartime exercises in the Canadian North convinced some government officials that the northern approaches could become the focus of an attack by hostile ground forces. Even if the enemy launched a land assault as a diversion, the Canadians would need to mount some kind of response, requiring an Arctic operational capability. In May 1946, the Canadian Chiefs of Staff created the Inter-Service Committee on Winter Warfare and the Arctic Research Advisory Committee, and the Defence Research Board made Arctic warfare a major area of focus and effort.⁴¹ Furthermore, the 1946 "Appreciation of the Requirements for Canadian-United States Security" and the "Joint Canadian-United States Basic Security Plan" called for mobile strike forces to counter any possible enemy incursion into the North.⁴²

The Canadians, however, did not act immediately to implement the mobile striking force concept, preferring to analyze and define the types of threats to which such a force would have to respond. In addition, before any specific role could be discussed for a mobile striking force, the Canadian and American militaries needed to evaluate their capabilities and requirements in the northern regions.⁴³ Defence planners understood that the *environment* of the Canadian North could be as much an enemy as any Soviet paratrooper and wanted to find ways to minimize the non-battle casualties that so often occurred in northern operations. If a mobile striking force was to ever take flight, military equipment had to be modified for northern conditions, operational and tactical doctrines worked out, and Canadian troops taught to live, work, and fight in the Arctic. The chief component of this effort was the Joint Experimental Testing Station at Fort Churchill.

The idea for a joint station began to bounce around Ottawa in the spring of 1946, spurred on by an American request for such a facility. Both the Canadians and Americans agreed that the technical services required a space where they could test equipment in Arctic conditions, and planners decided upon Churchill, Manitoba, which was surrounded by a barren landscape and accessible year-round by plane and rail.⁴⁴ It boasted ideal terrain and climate to mimic the Arctic conditions in which the Army would have to operate. To the north of the town was the tundra of the

Arctic, while to its south lay the kind of wooded areas that troops would have to operate in if deployed to the Subarctic.⁴⁵

The Joint Experimental Testing Station focused on land operations, with Canadian and American personnel conducting independent experiments until 1950-51.⁴⁶ Exercise *Musk Ox* provided them with a long list of problems to address. The first couple of winters were spent seeing if soldiers could live for long periods in the Arctic and if their equipment could withstand the cold. These studies highlighted that in the Arctic, the soldier needed almost 90 percent of his time just to stay alive and could devote only 10 percent to fighting.⁴⁷ A main goal of the staff at Fort Churchill was to even out these percentages. The first step was improving winter clothing and personal equipment, which was deemed very poor. The researchers struggled to find clothing that would keep the body warm while at rest but not cause overheating during action.⁴⁸ A long-term program was initiated to determine the best type of clothing for troops operating in Arctic and Subarctic conditions. Furthermore, researchers prioritized finding ways to lighten the loads of soldiers. The normal maintenance requirement for a Canadian Armoured Division in the field during the 1944-45 Northwest Europe campaign was 45.7 pounds per man and increased to 90 pounds per day during fighting. On *Musk Ox*, where no ammunition was used, the figure was 115 pounds per man per day.⁴⁹ Men were far too bogged down by the equipment needed to stay alive in the Arctic to operate effectively, and the facility at Fort Churchill grappled with this constraint – albeit with limited success.

In the winter of 1946-47, the Canadian Army used the lessons learned from the four previous northern exercises, as well as the findings of the first months of work at Fort Churchill, to create a two-week indoctrination course to familiarize personnel with operating in Arctic conditions. Only one captain and a sergeant could be found with sufficient northern experience to lead the course.⁵⁰ Participants in the first course spent nearly 90 percent of their time indoors acquiring theoretical instead of practical knowledge, and they only ventured outdoors for a few short marches.

Concluding that the initial course failed to prepare troops for the rigours of outdoor activity in the North, the Army revised the syllabus to allow for the equivalent of 3.5 days or eighty-four hours on the land. Soldiers spent sixty-four of these hours on exercises that required them to remain in the open for two days and two nights, providing them with an opportunity to apply the theoretical instructions given them in the classroom. Subjects covered in the revised course included bushcraft, clothing, shelter building, sanitation, cooking, equipment maintenance, load lashing, first aid, and the use of sleds and stoves. While it seemed an

impressive list, the Army's report on the indoctrination program concluded that a two-week course was inadequate to equip a soldier with sufficient knowledge and capability to survive in the Arctic. The course had allotted only 2.5 hours, for instance, to navigation, a major source of difficulty for those inexperienced in northern travel.⁵¹ Trainees required far more experience with practical outdoor work, and the Army lengthened the Arctic indoctrination course to four weeks.⁵²

As the work at Fort Churchill slowly started to build momentum, strategists and media commentators continued to devote considerable attention to the probable scale of conflict in the North. With the enunciation of the Truman Doctrine in the president's speech to Congress in March 1947, the "Cold War" (as it was labelled by American journalist Walter Lippmann) became an accepted reality, prompting open projections of a massive Soviet invasion of North America. An American officer, writing in 1949, commented that if an enemy force (obviously Russian) could succeed in overrunning Alaska, it would be in a "splendid position to invade the mainland of the United States."⁵³ Sensibly, military and political leaders in Canada and the United States never accepted this extreme position.

Most who considered the massive invasion scenario argued that it was a most unlikely occurrence. When asked in July 1947 "about Alberta's probable role in the event of an enemy attack across the Arctic," Lieutenant-General Charles Foulkes "decried all the poppycock that has been given out regarding such a possibility." As he went on to highlight, "fifty-seven pounds of freight to maintain a single man. Can you imagine how many aircraft would be needed to keep an enemy force going in the Arctic[?] The Arctic wastes are our strongest defence."⁵⁴ Similarly, George Pearkes, a future minister of national defence, later told the House of Commons that "it is fantastic to think that large armies could be landed on the Arctic shores of Canada and advanced through the barren lands of the great north."⁵⁵ Considering that the distances involved are measured in thousands of kilometres, these represented sound conclusions. Even in the Northwest, which boasted the Alaska Highway, the thought of an adversary invading the most powerful nation in the world by relying on a single road for supply and advance was ridiculous. Credible fears of a massive invasion were laid to rest when military planners of Canada and the United States became familiar with the realities of the northern terrain and climate and its effect upon military manoeuvre. A newspaper article written in 1949 was accurate when it said that "military planners appear to have abandoned thought of a full scale invasion of North America

across the Polar region. On the basis of experience at Fort Churchill and elsewhere, they do not think it could be done."⁵⁶

If the threat of a full-scale invasion could be ruled out, the possibility of a Soviet lodgement in the North could not be so easily dismissed. An Albertan member of Parliament observed in 1951 that if the Soviets secured a foothold in the Canadian North, "the object in doing this would be to create confusion and alarm, in the hope that it would prevent us from sending troops and material abroad."⁵⁷ This same theme had been developed in an earlier newspaper article, which observed that "an enemy could establish a token foothold on any of the thousands of islands in the Canadian Arctic, or anywhere in the sparsely populated area of northern Canada. Thus a diversion would be created that might keep large bodies of Canadian and United States forces pre-occupied, cutting down the forces available for action in more active theatres."⁵⁸ But what would be the object of such an operation, one American officer queried? In the North at the time, there were no population centres, no industrial areas, no ports, no communications networks, and no developed deposits of natural resources.⁵⁹ A Soviet lodgement "in the middle of nowhere" could not, in itself, threaten the security of North America and could have been left *in situ* indefinitely. Rather than diverting masses of Canadian and American troops from the main theatres of war, such a deployment could have had the exact opposite effect – that of diverting Soviet resources to support the lodgement. The logistic requirements of any lodgement would have been heavy, particularly in view of the transpolar distances involved. Thus, in reality, the occupation of a piece of barren land was not a likely or reasonable objective.

The possibility of an enemy airborne force seizing an *airbase* in the Canadian North seemed more plausible. While most of the airbases constructed in the region during the Second World War did not have the capacity to accept long-range bombers, a few did. In particular, Whitehorse, Churchill, Frobisher Bay, and Goose Bay were attractive targets. The popular war scenario related to the Canadian North envisaged Soviet bombers striking over the pole at the heart of the United States. Airborne troops would follow in their wake, seizing bases in the Canadian North where the bombers could land, refuel, and rearm for further attacks or for their return to Soviet bases.⁶⁰ As technology advanced and intercontinental bombers improved in the 1950s, the Canadian military envisioned new scenarios where enemy airborne forces assaulted radar stations to disrupt Canadian-American early warning systems. In theory, at least, these threat assessments provided a pretext for scenarios upon which northern exercises could be designed. Thus,

while discussions about the likelihood of northern ground combat operations, and their scale, rumbled in political speeches, staff colleges, professional military journals, and letters-to-the-editor columns in newspapers, the Canadian Army quietly went about the business of learning and practising how to live and fight in the Arctic and Subarctic.

Learning Lessons from Early Cold War Northern Exercises

The training, experiences, and experiments conducted at Fort Churchill between 1946 and 1947 assisted in the development of a tactical doctrine for northern operations, which the Army soon put to the test through a series of small-scale exercises. Between 21 January and 31 March 1947, for instance, a company from the PPCLI conducted Exercise *Haines*, a winter training exercise in the Whitehorse area in which fifty men of all ranks tested equipment, trained on snowshoes, and practised patrols in the harsh conditions.⁶¹ A year later, *Haines II* had 150 men conducting training patrols in the same area. Meanwhile, the barren lands surrounding Fort Churchill hosted Exercises *Moccasin* (1947-48), which tested vehicles in extreme cold conditions, and *Sigloo* (1948-49), during which signals personnel evaluated communications and associated equipment.⁶²

The Canadian Army also sent observers to some of the American exercises held in Alaska (particularly to Big Delta, where the U.S. Army set up its Arctic indoctrination school). For example, eleven Canadian observers attended Exercise *Yukon* in the winter of 1947-48, and their reports assisted in the formation of tactical doctrine and in the planning of new exercises in Canada.⁶³ The U.S. military held other large-scale exercises in Alaska and the Aleutian Islands, involving up to 1,500 soldiers, and provided the Canadian military with access to their post-exercise reports.⁶⁴ The lessons learned from these early Canadian and American postwar exercises highlighted that indoctrination training had to be provided to every individual selected for service in the Arctic.

By 1949, very few Canadian personnel had received any indoctrination training or had any on-the-ground experience in the Arctic or Subarctic. Looking back on the situation, Dr. J.A. Easterbrook, a scientist posted to Fort Churchill, reflected that, "both individually and institutionally, Canadians were ignorant about the North country and how to conduct military operations in it."⁶⁵ By this point, the three regular infantry battalions of the peacetime Canadian Army had been trained as parachutists, and the Army had styled the three, along with their supporting arms and services, the Mobile Striking Force (MSF). While in theory the MSF was a brigade group ready to defend northern Canada, in reality the "brigade" had no designated headquarters and never trained

together. Battalion groups exercised independently, although a shortage of transport aircraft usually limited parachute training to company-level operations.⁶⁶ The steady stream of exercises initiated by the military to start preparing the MSF for northern operations often reflected these limitations.

In the winter of 1950, the U.S. and Canadian militaries conducted Exercise *Sweetbriar*, a large-scale tactical exercise along the northern part of the Alaska Highway. Over five thousand Army and Air Force personnel participated in the exercise, designed to test doctrine, clothing, equipment, vehicles, aircraft, and weapons and to serve as a means of developing a standard operating procedure between the two nations.⁶⁷ Although the scenario created for *Sweetbriar* involved an enemy invasion of Alaska, subsequent exercises featured MSF units responding to small groups of “enemies” landing in northern Canada to set up navigational beacons for bombers, to seize airheads to support sustained operations against southern targets, or to destroy radar and radio stations. These exercises often involved parachute assaults, aerial resupply, and airfield building, and they called for close Army-Air Force cooperation.

As *Sweetbriar* unfolded along the Alaska Highway, Exercise *Sun Dog I* tested an infantry company group as it carried out a series of tactical movements and patrols along the edge of the treeline and into the barrens close to Fort Churchill, while harassed by a small enemy force. The Army concluded that *Sun Dog* represented the “first exercise of any size, of a tactical nature, to be held in the Eastern Arctic under conditions which are truly Arctic from the climatic and geographic viewpoint.”⁶⁸ That July, Exercises *Shoo Fly I* and *Cross Country* explored the problems faced by small infantry and engineer units operating on the snowless tundra outside Fort Churchill. Northern summer exercises continued on much smaller scales than their winter counterparts, usually involving platoons and companies, as opposed to reinforced company and battalion groups.⁶⁹

In 1951, the Army and the RCAF conducted another *Sun Dog* exercise in the barrens northwest of Fort Churchill during the winter, while *Shoo Fly II* tested a platoon in summer conditions. During the winter of 1951-52, reinforced company groups of the MSF circulated through Churchill on Exercise *Polestar*, a four-week period of intensive Arctic training that centred around various enemy lodgement scenarios. In February 1952, *Sun Dog III* tested the skills acquired by several of these units in a situation that had them assaulting an enemy force that had seized an airfield at Kuujuaq (Fort Chimo).⁷⁰ That summer, three *Deer Fly* exercises allowed small MSF units to conduct summer training around Fort Churchill and Christmas Lake. Meanwhile, between January and July 1952, Canadian

and American army engineers at Kluane Lake in Yukon undertook Exercise *Eager Beaver*. Over the six-month period, about 300 Americans and 135 Canadians trained in building emergency airstrips on frozen lakes in winter and on muskeg after the snow had gone.⁷¹ The importance of air mobility in northern operations had long been a point of theoretical discussion. With Exercise *Eager Beaver*, the U.S. and Canadian militaries finally got down to the actual practicalities of training troops in the construction of the field-expedient facilities that would be necessary adjuncts to air combat support.

During the winter of 1952-53, Exercise *Prairie Tundra* provided Arctic indoctrination training to two reinforced company groups of the MSF in scenarios that had the soldiers responding to enemy lodgements in "diversified terrain" above the treeline north of Fort Churchill.⁷² A large-scale exercise called *Bull Dog I* took place in February and March 1953 in the area around Norman Wells and Tulita (then called Fort Norman). After an enemy force captured the airfield at Norman Wells, two reinforced companies of the 2PPCLI, with the support of the RCAF and the Canadian Rangers, deployed to counter them.⁷³

In December 1954, *Bull Dog II* envisioned an enemy lodgement at an isolated radio station at Baker Lake and a parachute jump by the Royal Canadian Regiment into the barrens to recapture the station and destroy the enemy. Temperatures below -40°C and winds gusting from twenty to forty miles per hour, however, eliminated any possibility of a parachute assault. As a result, the exercise petered out, with the "enemy" still ensconced on the objective.⁷⁴ In *Loup Garou*, the MSF successfully responded to a scenario that had an enemy force operating in the area around Sept-Îles, Quebec.

Finally, the Canadian military conducted Exercise *Bull Dog III* in the vicinity of Yellowknife between 23 February and 8 March 1955. The exercise simulated the enemy capture of the airfield at Yellowknife, with elements of the PPCLI and Canadian Rangers tasked with wiping out the lodgement. The Army hailed the exercise as clear proof of the workability of the MSF concept, even though many of the issues related to Arctic and Subarctic operations still needed to be adequately addressed.⁷⁵ After *Bull Dog III*, the tempo of northern exercises and training rapidly decreased.

The results of all these northern exercises led the Canadian Army to conclude that "no radical changes from accepted combat principles or tactical doctrine are imposed by conditions of snow and extreme cold." Just as it had after the wartime exercises, the Army continued to maintain that "in the barren lands, desert tactical principles apply virtually without change, while in the Yukon and Alaska, jungle and mountain warfare

tactics applied.”⁷⁶ Although postwar exercises proved that there would be no major changes to tactical doctrine during deployments in the North, Army planners still crafted what they termed a “special technique of operation” for the region. These techniques included greater initial reconnaissance than in temperate zones and emphasized careful timing, shorter assault phases, the adoption of limited objectives, and the provision of speedy and effective front-line relief to active troops. The Army developed almost all of these special techniques to limit the exposure of soldiers to the northern elements.⁷⁷ The northern exercises had established, for instance, that troops “heated in the attack will be more liable to the effects of cold,” heightening the importance of immediate post-attack consolidation.⁷⁸ The Army recognized that this “special technique of operation” would be subject to the tremendous diversity within the general Arctic and Subarctic ecozones and would involve considerable modification depending on the specific topographical, climatological, and environmental conditions in specific areas. The northern exercises conducted between 1945 and 1955 had made it abundantly clear that there existed no “one size fits all” model for Arctic and Subarctic operations.

The Canadian Army accepted that there would be no major changes to tactical doctrine during northern deployments only if a force could be sufficiently trained and equipped to function effectively and retain its mobility in the North.⁷⁹ The post-exercise report on *Sweetbriar* noted that,

Arctic or sub-arctic manoeuvres differ from ordinary training exercises in that the soldier is opposed by an enemy, who is not only capable of inflicting injury and undermining morale, but who will take advantage of every opportunity to do so. This enemy is winter at its worst. Temperatures sink to 60 and 70 degrees below zero, blizzards spring up from nowhere without warning, the wind-chill factor can change in five minutes and a man can become lost so easily in the wastes of the arctic. If troops are sent to fight in such temperatures without sufficient training, unnecessary casualties in both men and equipment will be incurred.⁸⁰

Without proper training and equipment, soldiers would be injured, their morale would drop, and any force’s mobility would be severely curtailed.

The attainment of adequate mobility in the North remained one of the Army’s chief priorities during the early Cold War, and the northern exercises generated many lessons on the problems of force movement. Canadian defence planners quickly realized that “the different types of terrain, muskeg, bush, tundra and exposed rock all raised their own

problems.”⁸¹ In the Subarctic, the relative immobility of ground forces in remote forest areas remained the chief constraint on operations. The Army concluded that in the Subarctic, “there are usually sufficient roads and tracks to warrant the use of wheeled supply convoys after the expenditure of considerable engineering effort.” Wheeled forces remained road-bound, however, and in a region with such a limited transportation grid, the Army discussed the practicality of deploying bulldozers to carve roads out of the northern bush. Even over-snow vehicles struggled to operate in the paucity of open areas and dense bush that characterized the space within the treeline. Above the treeline, however, a moving force had to rely entirely on over-snow vehicles or on supply by air. For a force operating in the Arctic, the Army concluded, dependence on an engineer “road-making tail ... would so limit his mobility as to almost deprive him of it altogether.”⁸²

The Army also realized that the oft-forgotten northern summer, and the other two northern seasons of break-up and freeze-up, presented obstacles to mobility that were infinitely greater than those of winter. As one American officer wrote, “you can walk on water only if it’s frozen.”⁸³ Surface water in the form of rivers, streams, lakes, and muskegs was a major feature of most northern areas and severely impeded cross-country movement. Foot movement across muskegs and poorly drained ground proved to be exhausting in a remarkably short time. The Canadian Army (as well as its American counterpart) accepted that military operations were simply not feasible during the periods of break-up and freeze-up. The individual soldier could not even begin to carry the range of clothing that was required to survive during these critical seasons. Experts also realized that the logistic back-up required to support combat operations during these periods would have been out of all proportions to the size of the combat force that could have been maintained. Defence planners concluded that any enemy would be confronted with the same insurmountable problems of mobility as the North American forces. The Canadian and U.S. militaries accepted, therefore, that should war ever come to the North, there would be a pause in operations during spring and fall.⁸⁴

Given the problems of mobility encountered during northern exercises, the Canadian Army came to view the idea of going over the terrain rather than across it as the best solution to the problem of tactical manoeuvre in the Arctic and Subarctic. As a result, along with the analogies to desert, jungle, and mountain warfare, the Canadian Army soon started to compare northern operations to the island-hopping campaigns of the Pacific Front during the Second World War. In the aftermath of *Sweetbriar*,

Major-General Matthew Penhale noted, "in my opinion, support of operations anywhere in the north could not well be sustained by a long line of communications (even by air) extending as far back as Edmonton. Establishment of forward or advanced bases would therefore be a necessity."⁸⁵ The Army accepted that any force operating in the Arctic or Subarctic would have to move from advanced base to advanced base if it hoped to retain its mobility and effectiveness.⁸⁶ *Sweetbriar*, for instance, used sixteen camps that the Army manned and stocked with supplies of rations, petrol, spare parts, and stores.⁸⁷

Even with extensive air support and the use of sufficient advanced bases, any force operating in the Arctic and Subarctic would still have to cover considerable distances on foot, which always proved to be slow and fatiguing no matter the season. Although the staff at Fort Churchill had been working on the problem since the end of *Musk Ox*, by the 1950s, the amount of living equipment a soldier had to haul on his back or drag by sled continued to pose difficulties for all northern exercises. In 1951, the Army clocked the average speed of movement of a company encumbered with 120 pounds per man at 1.24 miles per hour over an average distance of 6 miles. During a comparable period in 1952, a group with similar training, but encumbered with only 95 pounds per man, moved over 9.6 miles at 1.34 miles per hour.⁸⁸ Even in summer operations, the burden of additional equipment became a major factor. When the participants in *Shoo Fly II* travelled over diversified terrain, there was a "marked drop in distance covered, rate of march, fitness to fight and morale, when weights above fifty pounds were carried."⁸⁹ Not only the speed and distance covered concerned the Army, but the number of troops required to carry living equipment, as opposed to tactical or operational requirements. As historian Matthew Wiseman has observed, reports from *Sun Dog I* noted that three out of every five men were required to haul the group's living equipment, leaving only 40 percent manpower to transport weapons, extra ammunition, and other supplies.⁹⁰ While soldiers required this living equipment to defeat their primary enemy in the North (the climate), its weight and unwieldiness imposed serious limitations on northern operations.

Along with the burdensome equipment required by soldiers on northern deployments, the basic task of survival in the Arctic and Subarctic also imposed severe constraints on the mobility and effectiveness of a force. In these regions, survival demanded more "time, energy and skill than under temperate conditions."⁹¹ The U.S. military created a rough rule that for men in the Arctic, efficiency dropped by 2 percent for every degree below zero Fahrenheit. At 40 or 50° below zero,

the “average man may become concerned solely with the business of keeping alive, and if possible, warm.”⁹² The Canadian Army’s northern exercises revealed that inexperienced troops required up to ten hours a day just to make and break camp and complete the survival tasks that the military termed “the business of living.”⁹³

In the late 1940s and early 1950s, the Army hoped that it could identify personnel who had greater immunity to the cold and who could easily and expediently accomplish the “business of living” in the North, thus allowing a force to retain its mobility and effectiveness. The military initiated psychiatric and psychological tests of its personnel to determine ideal candidates for cold weather soldiery. Wiseman has observed that scientists tested the physical and mental qualities of troops operating under severe cold-weather conditions, even conducting urinalyses, blood pressure measurements, and blood analyses on them.⁹⁴ Despite these efforts, post-exercise reports consistently concluded that it was not essential for men to be specially selected for northern operations, but that any physically fit soldier could function in the Arctic and Subarctic with the proper training and equipment.⁹⁵

The Canadian Army’s *Guide to Planning and Execution of Operations in the North* stressed that “the key to mobility in the North is fitness and endurance on the part of troops and knowledge of northern conditions, so that survival tasks (the business of living) require the minimum of time and effort.”⁹⁶ Properly equipped soldiers, trained intensively in winter craft and movement, and armed with sufficient experience in the North, could reduce the time required for survival tasks to three hours.⁹⁷ After discussions with senior officers involved in *Sweetbriar*, reporter Hanson Baldwin concluded that “the idea, once prevalent, that nearly any troops can be taught quickly to fight in the Arctic after a short indoctrination course must be abandoned. Extensive and thorough training is essential in the special techniques of Arctic warfare if excessive casualties are to be avoided.”⁹⁸ Before northern deployments, the Army decided, every soldier involved had to be taught the proper care of personal clothing and equipment, first aid, camp routine, bushcraft, navigation, march discipline, sanitation, food, hygiene, and regular unit discipline. Through training and time outdoors, the Army hoped that soldiers would feel comfortable working in the cold and would accept that they were “carrying around a portable heater” in their “belly and privates” which, if used properly, would allow them to extend the time they worked barehanded – thus increasing their efficiency dramatically.⁹⁹ Even though much of this information and training represented an adaptation of

normal techniques to new conditions, some of the skills were new and demanded time and much repetition before they could be mastered.¹⁰⁰

In particular, post-exercise reports often emphasized the need to teach soldiers that would be deployed to the Arctic and Subarctic the necessity of “hard living” and how to eliminate the “non-essential.”¹⁰¹ After *Sweetbriar*, the Canadian Army concluded that “the need for artificial shelter by civilized man is probably the greatest factor in the loss of mobility of troops in the Arctic.” The problems of mobility would be greatly simplified if infantry could live out in the open even in the most severe weather, as trappers and members of the Royal Canadian Mounted Police had done for decades in the North. To prepare troops for “hard living,” training had to imbue a sense of “self-reliance in the mental attitude of the individual.”¹⁰² Soldiers had to be taught to use strips of lightweight windproof material that they could carry with them to make shelter, or even assemble one using snow or branches. “Although tentage can never be dispensed with entirely, it could then be done without for longer periods,” the Army hoped. “This is the real key to the re-establishment of dismounted infantry mobility” in northern operations.¹⁰³ While the weight and awkwardness of hauling tents reduced mobility, so, too, did the rations carried by the troops. One of the lessons that emanated from Exercise *Loup Garou* suggested that the Army teach soldiers that “for short periods a reduction of caloric intake may be accepted without ill effect or drop in efficiency.”¹⁰⁴ Despite efforts to limit the bulk and weight of food and shelter through “hard living,” they remained significant impediments to effective mobility.

Although the Army accepted that any soldiers going on a northern deployment required extensive training, no clear conclusion emerged on the amount of time required to prepare a soldier for Arctic duty. Timelines ranged from six months to two years. The after-action report from *Sun Dog I* argued that ten weeks was the bare minimum of training required for northern operations at the battalion level: three weeks of basic indoctrination, two weeks of trade training, three weeks of familiarization, and two weeks of collective training.¹⁰⁵ While opinions on the amount of time required to prepare a soldier for a northern deployment varied, the Army understood that for a force to achieve optimal effectiveness in Arctic and Subarctic conditions, certain groups required more extensive training, particularly navigators, engineers, and medical and signals personnel.

Once on the ground in the North, particularly when deployed to the treeless barrens, soldiers struggled with the basic skills of navigation, one of the keys to retaining effective mobility. Many parts of the North had not been properly mapped, while existing maps often lacked detail or had

errors, such as failing to include small lakes, ponds, and muskeg. The dearth of landmarks on the barrens upon which to take a bearing (which only worsened in the winter with snow-covered ground), the inefficiency of the magnetic compass in northern latitudes, the magnetic disturbances that made readings impossible, the difficulty in judging distance due to a lack of perspective, and the detours that units had to take to get around bush, creeks, and streams all required a high degree of navigational skill to overcome. In the winter, the short days and long nights, the fogs, snowfall, blizzards, and blowing snow, especially in the barrens, limited visibility and exacerbated all other navigation problems. During Exercise *Polestar*, observers noted a major problem in “distance judging” when the troops were on the land above the treeline. “Those distinguishing features which give the observer an indication of his distance from a specified object in other areas are either not present, or are dwarfed [*sic*] to such a degree that in nearly all cases, distance will be over-estimated,” *Polestar’s* after-action report concluded.¹⁰⁶ Even on flat terrain, marches often suffered from frequent curves, disrupting time schedules and demoralizing the men.¹⁰⁷

Given the problems associated with navigation, a central lesson learned from northern exercises insisted that everyone involved, but especially officers and NCOs, should become experts at dead reckoning. The skill involved calculating a unit’s position by using a previously determined starting point and a plotted course, and then advancing that position based on known or estimated speeds, accounting for elapsed time and course.¹⁰⁸ Dead reckoning proved a difficult skill to acquire, but through it, those navigating in the North could experience at least a degree of recurring success.

Experience during northern exercises also emphasized the problems that engineers encountered in supporting the Army’s quest to attain mobility. In addition to all the tasks normally required of engineering units in more temperate theatres, operations in the Subarctic placed “special emphasis on road construction and clearing, and an added responsibility on the engineers.”¹⁰⁹ During northern deployments, engineers constructed and maintained all of the main supply routes, clearing snow from roads and preparing landing strips on frozen lakes and rivers. During break-up and freeze-up, engineers faced the difficult challenge of the “almost continuous maintenance” of roads and tracks, and they found themselves in heavy demand for their bridging and rafting services. On top of these duties, engineers had to expediently construct warm advanced bases and temporary buildings.¹¹⁰ They had to be trained to work efficiently, safely, and quickly in the Arctic and

Subarctic environments, and the success of northern deployments largely depended on their level of capability and adaptability.

Medical personnel also had to adapt to the northern environment and understand that there was no such thing as a minor casualty in the climatic conditions of the Arctic and Subarctic. The after-action reports stressed that every incident held the potential for minor catastrophe and that many injuries could become life-threatening in a northern context, particularly in light of how long an evacuation could take. Lessons learned highlighted the importance of keeping casualties warm and dry. They also stressed the important role medical personnel had to play in educating soldiers on the prevention of snow blindness, overheating, trench foot, and, above all else, frostbite.¹¹¹ During *Polestar*, for example, ninety-four men were reported sick, and nine were sent to the hospital at Fort Churchill. Their afflictions ranged from bronchitis, gastro-enteritis, intestinal colic, fume conjunctivitis, and frostbite.¹¹² Even during *Sweetbriar*, which enjoyed fairly moderate temperatures, the Canadian Army reported that the “wastage of men due to climatic conditions” was high, listing twenty-four cases of cold or influenza, twenty cases of frostbite, and thirty-five evacuations for other injuries.¹¹³ Medical personnel had to learn how to deal with this “wastage of men” effectively to ensure a force’s mobility or effectiveness in the field.

Another main conclusion to come out of *Sweetbriar* and several other northern exercises suggested that, of all the troops involved in operations, signals personnel required the most pre-training and testing before deployment. These exercises highlighted that rapid tactical mobility in the North depended on the “perfection of a communications system.”¹¹⁴ To achieve this efficiency, signals personnel had to counter all of the difficulties brought on by northern climatic conditions, which severely impeded the maintenance of good wireless communications.¹¹⁵

Exercise *Sigloo* proved how poorly lead-acid batteries functioned in sub-zero temperatures and how disruptive a role “snow static” and “auroral blackouts” could play. During *Sun Dog I*, when the wind exceeded fifteen miles per hour and caused blowing snow, the interference caused by the snow static blacked out wireless communication by voice by over 75 percent of the range of the set.¹¹⁶ *Sweetbriar* found that faults and breakdowns in wireless sets and power units would normally have been prevented or diminished to a great extent by experienced operators.¹¹⁷ Signals personnel had to be taught that taking a wireless set into a warm shelter after it had been cold-soaked could ruin it, and signallers were trained to give wireless sets additional time to warm up in the Arctic cold or risk blowing a fuse. They had to learn simple

tricks like storing batteries under their parkas to keep them warm and extend their operating lives. Even with practice and advancements in equipment, however, problems persisted, and a report from *Sun Dog III* summed up the “tenuous nature of wireless communications” during northern deployments.¹¹⁸

Throughout the late 1940s and 1950s, the personnel stationed at Fort Churchill continued to address the lessons learned from the northern exercises and various indoctrination courses, resolve the problems associated with mobility and force effectiveness, and work on the special issues faced by navigators, engineers, and medical and signals personnel. Post-exercise reports provided a steady stream of suggestions on how to make clothing, equipment, and practice more effective. In particular, the experts at Fort Churchill focused many of their efforts on reducing the weight, bulk, and quantity of equipment and clothing involved in northern operations.¹¹⁹ They worked to make parkas, mukluks, and mitts more effective and less disruptive. They engaged in a constant process of designing and modifying new equipment, from tents, toboggans, skis, snowshoes, and lamps, to rifles and Bren guns, insect repellent, snow shovels, spoons, and thermos containers.¹²⁰ Personnel experimented with solutions to specific equipment problems, such as how to stop moisture from accumulating in sleeping bags when men slipped their heads inside their bags.¹²¹ Engineers and mechanics tested gear and engine oil, winterized vehicles, experimented with prefabricated structures, and worked on water supply issues. The Chemical Corps studied gas masks and the effectiveness of chemicals under Arctic conditions. Signals experts tried to find solutions to the effects of Arctic conditions on communications, circuits, and radios. Ordinance specialists carried out experiments on everything from small arms to heavy artillery, combat vehicles, fuels, lubricants, antifreeze, brakes, Arctic open storage, and outdoor exposure.¹²² As the tempo of small unit exercises picked up, the staff at the fort focused on more specific combat-related issues to complement the lessons that the Army was learning in the field.¹²³

By 1951, the work at Fort Churchill, when combined with the lessons learned from Canadian and American northern exercises, had developed military equipment to such a point that operations in the Arctic and Subarctic could be conducted with a reasonable operational capability down to -25°F and a fair capability to -40°F. Nevertheless, as *Sweetbriar* and other Army exercises proved, by the early 1950s, operational capabilities were still well below 50 percent and usually somewhere between 25 percent and 35 percent.¹²⁴ The Army still had a long way to go before it could operate at peak efficiency in the North.

While the Army anticipated that additional research and development, troop training, and experience would continue to improve performance in the Arctic and Subarctic, the lessons learned from northern exercises emphasized that thorough planning and preparation were essential to increased capability. In his remarks after Exercise *Sweetbriar*, Major-General Matthew Penhale stressed that the ordinary affairs of a soldier's life in the North had to be "timed, ordered and controlled in all aspects, and in great detail, 24 hours a day, else confusion will abound."¹²⁵ Every detail possible had to be covered prior to a force deploying to the North – and northern operations involved "innumerable details."¹²⁶ The *Guide to the Planning and Execution of Operations in the North* warned that "to leave things to chance [in the Arctic and Subarctic] is to invite defeat, not necessarily by the enemy but by the climate itself."¹²⁷ The northern environment left "a very narrow margin between successful planning and disaster."¹²⁸

While the mistakes and omissions of planners could often be rectified in the field in more temperate regions, they generally proved "disastrous in the North." At the operational level, planning had to ensure that all necessary equipment, including a large supply of spares, was pre-positioned for northern exercises, given that the military could not replace forgotten or damaged items in the same manner as it would in less isolated areas. "During all seasons of the year severe limitations are placed upon the efficiency of all types of transport to the extent that adequate logistic support is difficult to achieve at best," the Army concluded. "Sudden, unplanned, demands for increased support are not likely to be met."¹²⁹ In the field, rates of wastage of clothing and equipment were always "abnormally high," which increased the importance of pre-positioned replacements.¹³⁰ Only through superior pre-planning would soldiers on the ground and the aircrew supporting them be able to face the unforeseen challenges that always crept into northern operations and embrace the flexibility needed to overcome changing local conditions.

Planners and commanders at all levels also had to "appreciate the difference in time values" that existed during operations in the Arctic and Subarctic. Canadian military commanders, schooled on the battlefields of Northwest Europe or in North Atlantic Treaty Organization (NATO) training exercises, repeatedly had to learn that the northern environment placed a restraining hand on the speed of all human activity. They had to develop a special northern "time sense" and accept that things just took longer in the North. Plans had to reflect that double or triple the time would be required for the completion of housekeeping duties and the care of equipment, let alone the conduct of kinetic operations.¹³¹ As the report

on *Sweetbriar* noted, "Deployment of troops, preparation and distribution of orders, cross-country marches, preparation of food, erection and striking of shelter, the delivery of supplies, routine administration and maintenance—all take much longer than is normally expected for similar operations in a temperate climate."¹³² During *Polestar*, for instance, a unit carrying a three-inch mortar had to turn back to camp after covering only three hundred yards, after which the exhausted men could go no further.¹³³ While training could improve the endurance of soldiers, planning simply had to accept that the movement of men and equipment would take longer in the North.

The northern exercises revealed that only careful advanced planning could allow the Army to exploit local sources of support – particularly the unorthodox units of Canadian Rangers sprinkled across the North – once a force deployed to the region. Although overlooked as an operational resource during the 1940s, the Rangers began to play increasingly active roles in exercises in the early 1950s as advisers on northern survival, guides for southern units, guerrilla forces, and even assault troops. More advanced cooperation was possible, however, only with detailed planning that understood and appreciated the benefits that the Rangers brought to northern operations – as well as their limitations. Despite enthusiastic media coverage that hyped the Rangers' potential contributions to Arctic combat, internal Army debates about the proper roles, responsibilities, and capabilities of the Rangers were never resolved during the early Cold War. Accordingly, the Army only partially capitalized on the potential opportunities offered by integrating the subject matter expertise of permanent northern residents into military planning and exercises.¹³⁴

The Army maintained that proper planning and preparation were essential to solving one of the greatest problems of northern exercises: morale. Every after-action report on the early Cold War northern exercises stressed the morale problems experienced by soldiers on the ground – the impact of the "Arctic goblin." Soldiers inexperienced in Arctic and Subarctic operations feared the austere and harsh northern environment.¹³⁵ Penhale found it "unfortunate that most of the published results of historical expeditions to the North have stressed the appalling conditions of hardship and misery, endurance and boredom that have to be faced, in the extreme areas of our planet." Almost no attention, the general complained, had been given to successful accomplishments in the North, where "many people exist, work and in fact spend their lives in a more or less happy and contented state." As a result, soldiers came to northern exercises with their morale already dampened by a preconceived perception of the North forged out of their fear of its extreme cold,

darkness, isolation, and barrenness. A soldier's mind, Penhale lamented, was too easily "filled with gloom and foreboding, and ... depression at the thought of the arduous service to come" in the "unknown" North. Plagued by negative thoughts and associations, troops could easily become "subjects to their minds, to the insidious effect of the north land," and reduced to psychological casualties. At the very least, Penhale warned, these morale problems created an apathy that reduced the effectiveness of the individual and in turn threatened the mobility and performance of his unit.¹³⁶

In the lead-up to an exercise and during its execution, Penhale argued, the "firm base" for a successful operation and high morale rested "in the provision of adequate equipment, not only in respect to clothing and personal gear, but also in relation to the effectiveness in performance of weapons, which must be demonstrable, if confidence is to be established."¹³⁷ Reliable, proven equipment improved morale, as did superior planning and preparation. The Army recognized that soldiers had to believe that their leadership had ordered and controlled their every move in the North, and it stressed the importance of passing this information on to the troops in the field. Confidence that leaders had planned every detail, had prepared for every exigency, and had ample supplies and spare equipment in place inspired a feeling of wellbeing in the troops. In particular, morale improved once soldiers felt confident that planners and medical personnel had sufficiently prepared for casualties.¹³⁸

The Army also recognized the strong connection between morale and the provision of relief facilities, which soldiers feared would be unavailable "on the end of a long line of communication." During northern deployments, soldiers required frequent and well-planned reliefs and ordered rests from the fatigue of operations, as well as breaks from the "squalor" of confined tents, cooking, and the absence of washing water.¹³⁹ Accordingly, for the Army to maintain morale in theatre, it had to plan for, and provide, plentiful forward rest areas, complete with laundry and bath units. The report on *Sweetbriar* suggested that these services, "and mobile canteens, especially if operated by women, would materially assist in the maintenance of morale."¹⁴⁰

While the knowledge of adequate planning and equipment could boost a soldier's morale prior to and during northern exercises, the Army recognized the important role that training, experience, and correct information could play in dispelling many of the fears of the North carried by soldiers, thus furnishing them with the proper mental attitude. "The natural fear of the cold," a consolidated set of lessons learned observed, "can be overcome by acquiring confidence in one's own ability to

withstand it.”¹⁴¹ Once a soldier was provided with a high level of knowledge and understanding of the Arctic and Subarctic, imaginary problems disappeared and he could handle the real challenges.¹⁴² Training and adequate experience could tame, if not altogether defeat, the “Arctic goblin.” By *Sun Dog III*, for instance, the Army could conclude that “none of the fear of the environment that had existed on the previous exercise was evident during this one. This was probably due to the self-assurance created by the indoctrination exercise.”¹⁴³

Once in the field for an extended period, however, the Army understood that training, equipment, and confidence in the plan were simply not enough to stave off declining morale without one of the most essential requirements of northern operations: effective leadership by junior officers and NCOs.¹⁴⁴ While leadership played a significant role in every military operation, the lessons learned from northern exercises highlighted it as one of the most important variables in Arctic and Subarctic deployments.¹⁴⁵ Junior officers and NCOs had to actively evaluate their personnel from the moment they learned that their units were heading north. The conclusions emanating from the more strenuous exercises on the land, such as *Sun Dog I*, established that the troops “need not be hand-picked. However, some weeding out during the training period must be permitted to eliminate temperamentally or physically unsuitable men who would otherwise become liabilities during operations.”¹⁴⁶ During these initial preparations, officers were also advised to weed out the “chronic moaners” who would have a negative impact on unit morale.¹⁴⁷ To assist in building morale, officers and NCOs also had to disseminate a steady stream of “balanced and factual information on the Arctic and its problems and thus counteract the exaggerated views so widely held.”¹⁴⁸

During long northern deployments, even the best trained and equipped men could lose the fight against the cold, which gradually made them intellectually numb and sapped their morale, causing them to lose interest in essential tasks. While on the land, bundled up in layers of clothing, heads covered in the thick hoods of parkas, the Army worried that soldiers might withdraw into themselves and into a cocoon-like existence or individual hibernation,¹⁴⁹ even to the point of forgetting to take basic actions necessary to stay alive. When soldiers retreated into their parkas, not only were their fields of vision and hearing obstructed, but their mental processes and responses to commands became sluggish.¹⁵⁰ Once in the warmth of tents or shelters, the northern exercises proved that troops often shirked their duties. Leadership had to ensure that this kind of individual or group hibernation did not occur, that

soldiers did not seek the comfort of sleeping bags for too long of periods, or that squads did not remain in tents rather than complete their duties. To accomplish this, officers and NCOs had to constantly keep their men engaged, focused, and encouraged.

The Army recognized that the maintenance of morale, operational effectiveness, and cold-weather discipline were closely connected, and officers and NCOs were ordered to “pay constant attention to the state of clothing and equipment, hygiene and sanitation, care of weapons, feeding ... and other matters.” They had to ensure that soldiers wore their clothing properly (loose and in layers) and maintained their equipment. They had to watch that their men did not sleep with their heads in their sleeping bags (moisture from breathing will freeze) and consistently promote cleanliness in their units. Captain R.R.M. Croome, the medical officer on *Musk Ox*, noted disapprovingly that cleanliness and hygiene had not been stressed prior to the exercise, under the misguided belief that washing and shaving removed “protective oils.” As a result, men on the operation rarely washed, shaved, or changed their clothes. Croome stressed the importance of personal hygiene, noting that dirty or greasy body parts resulted in dirty and greasy clothing, limiting their insulating value. He reported that “slovenliness lowers morale and breeds lack of discipline.”¹⁵¹ The Army quickly learned that when clothing became matted in dirt and grease, much of its insulation was lost as the air pockets in the clothes were crushed or filled up, allowing the heat to escape from the body more readily.

Underwear, in particular, required close attention.¹⁵² Despite attempts to address this issue, cleanliness remained a persistent problem. The joint after-action report for *Sweetbriar* noted that “military personnel scheduled for participation in northern exercise tend to become slovenly in their personal appearance and general housekeeping duties; therefore, more supervision, inspection, and basic instruction are required to maintain desired standards.”¹⁵³ The Army soon associated lax hygiene practices with diminished morale and poor leadership.

Junior leadership also bore primary responsibility for two of the primary afflictions soldiers encountered during winter deployments in the North: overheating and frostbite. When a man suffered from heat exhaustion on *Polestar* despite temperatures well below zero, because he was overdressed and carried his equipment, the Army considered this a leadership failure.¹⁵⁴ Officers had to recognize the signs of overheating, the working conditions that created the problem, and how to respond. Even more importantly, officers and NCOs had to initiate an effective

“buddy system” to perform frostbite and clothing checks, which required knowing which soldiers would work well together.¹⁵⁵

Officers and NCOs had to ensure that their men continued to eat and drink in the cold of the northern winter, paying particular attention to the prevention of waste. This was essential, “not only from the logistical point of view as regards supplies of all natures, but from a health and morale point of view as regards food and water wastage.” The Army provided rations that had been carefully prepared to meet the caloric requirements of soldiers operating in the northern environment, and officers had to encourage their men to eat all of the food given them. “Waste of food is not only a waste of logistic effort,” one report noted, “but is also an invitation to sickness.”¹⁵⁶

The northern exercises underlined that “strong and forceful leadership, coupled with a high degree of man-management[,] are required in order to obtain the maximum from troops” operating in Arctic and Subarctic conditions.¹⁵⁷ During northern deployments, officers and NCOs had to display greater initiative, self-reliance, and mental and physical endurance than was generally required during operations in more temperate areas. They had to improvise, remain flexible and adaptable, and possess strong skills in navigation and bushcraft. The Army discerned that unselfishness represented one of the central components of effective leadership. During northern deployments, an effective leader had to remain out in the cold longer than his men, providing for their warmth and comfort before his own. The rigours of the northern environment could test even the most competent leader, particularly when bad weather struck. The post-exercise report from *Sun Dog I* stressed the need for officers and NCOs to keep the men moving even in harsh conditions to sustain operational mobility, reduce cold casualties, and maintain morale. Not every officer could accomplish such a difficult task, but success on northern operations depended on those who could.¹⁵⁸ In the end, the formula for successful northern operations included suitable training and equipment, superior planning, organization and preparation, and the maintenance of morale. The northern exercises conducted by the Canadian Army suggested, first and foremost, that effective leadership represented the essential ingredient that forged all of these factors into an effective deployment.

Conclusions

The day is past when our Armed Forces can afford to suspend operation for the winter months. Space is power only when we can move and fight effectively in that space during all seasons of the year.

- Final report for Exercise *Eskimo* (1945)¹⁵⁹

The after-action reports from the northern exercises conducted between 1945 and 1955 provide a road map of the trials and errors, failures and successes, and lessons learned that shaped the Canadian Army's experience in the North. These reports give the impression that steady progress was being made on the development and improvement of equipment and other tangible factors, as exercises and tests pointed to technical solutions that would allow "machines, materiel, and men" to overcome the Arctic's "unique challenges not met elsewhere in the world."¹⁶⁰ There remained, however, a whole layer of intangibles for which it proved more difficult to engineer solutions through iterative processes. Human factors, particularly morale and motivation, remained a consistent problem in northern exercises, even when the Army supplied troops with the proper training and equipment. Overcoming this "hostile environment" was not simply a physical challenge but a psychological one as well.¹⁶¹ Although another human factor – effective leadership – provided a stout defence against weakening morale, the "Arctic goblin" proved a difficult enemy to eradicate.

Post-exercise reports highlighted that the only real solution to some of the more intractable human factors involved in northern operations, and the only way to increase the Army's effectiveness in the Arctic and Subarctic, was time. It took time to familiarize troops, at every level from staff officers and planners to the individual infantryman, with the Arctic. It took time to teach soldiers how to think about the North and defeat the "Arctic goblin." It took time and repetition for soldiers to absorb the necessary training and skills to make the "business of living" in the North more manageable. Finally, soldiers had to spend time in the North, rather than simply passing through the region for short periods, if the Army wanted to significantly improve its Arctic capability.

By 1955, the Canadian Army had spent a decade operating in the Arctic and Subarctic and had developed an adequate northern capability – although on a more modest scale than originally intended.¹⁶² As its capability improved, however, the changing strategic environment started to undermine the perceived military value of these efforts on the ground. When the Soviets acquired long-range bombers such as the Tu-16 Badger, the MYA-4 Bison, and the Tu-20 Bear, all of which could be aerially refuelled, the threat of an enemy lodgement in the North declined precipitously while the threat of an atomic strike on the North American heartland grew exponentially.¹⁶³ Defence planners focused on meeting the threat of Soviet air attacks on Canadian and American cities by creating an elaborate radar system in the Arctic. As these new concerns and priorities gripped Canadian-American defence planning, a new wave of

sovereignty concerns also hit Ottawa – concerns that drew federal officials' attention to the coastline of the Arctic Ocean and to the Arctic Archipelago itself.¹⁶⁴

Army activity in the Canadian North peaked in the mid-1950s and thereafter declined until, by the mid-1960s, the military had virtually abandoned the region as a potential operational theatre. Sub-units continued to train episodically at Churchill, but after this military base closed in 1964, training became increasingly rare. The Canadian Rangers were seriously affected by the diminished Army interest in the North and left to wither on the vine.¹⁶⁵ The 1964 *White Paper on Defence*, which did not contain a single reference to the North, gave official utterance to what had become an informal reality. "It is, for the foreseeable future, impossible to conceive of any significant external threat to Canada which is not also a threat to North America as a whole," the policy document noted, although it allowed that "the minimum requirements for the defence of Canada are: the ability to maintain surveillance of Canadian territory, airspace and territorial waters; [and] the ability to deal with military incidents on Canadian territory."¹⁶⁶ While these may have been the minimum requirements, there is no indication that the subsequent structuring of the Canadian Armed Forces involved any specific steps to develop a surveillance or combat capability in the forces appropriate to the needs of the North in the 1960s. Instead, the lessons learned by the Canadian Army in the decade after the Second World War were forgotten, a casualty of the arrival of the missile age and, as historian Andrew Godefroy observes, the fixations of "an army increasingly concerned with fighting on the north German plains."¹⁶⁷

*Appendix: Canadian Army Exercises in the Canadian North, 1945-55*¹⁶⁸

YEAR	NAME	LOCATION
1945	<i>Eskimo</i>	Prince Albert and Lac la Ronge area, Saskatchewan
1945	<i>Polar Bear</i>	Caribou and Coastal Range, British Columbia
1945	<i>Lemming</i>	Churchill, Manitoba, to Padlei, NWT
1946	<i>Musk Ox</i>	Churchill, Manitoba, to Edmonton, Alberta, via Cambridge Bay, Kugluktuk (Coppermine), and Tulita (Fort Norman)
1946	<i>North</i>	Alaska Highway
1947-48	<i>Moccasin</i>	Churchill, Manitoba
1948-49	<i>Sigloo</i>	Churchill, Manitoba
1950	<i>Sweetbriar</i>	Northwest Highway System between Whitehorse, Yukon, and Northway, Alaska
1950	<i>Sun Dog I</i>	Churchill, Manitoba
1950	<i>Cross Country</i>	Fort Churchill to Cape Churchill, Manitoba
1950	<i>Shoo Fly I</i>	Cape Churchill, Manitoba, to Duck Lake, Saskatchewan
1951	<i>Sun Dog II</i>	Fort Churchill and Nunnalla area
1951	<i>Shoo Fly II</i>	Churchill, Manitoba
1951-52	<i>Polestar</i>	Churchill, Manitoba
1952	<i>Sun Dog III</i>	Kuujjuaq (Fort Chimo)
1952	<i>Deer Fly I</i>	Fort Churchill and Christmas Lake, Manitoba
1952	<i>Deer Fly II and III</i>	Fort Churchill and Christmas Lake, Manitoba
1952	<i>Eager Beaver</i>	Kluane Lake, Yukon
1952-53	<i>Prairie Tundra</i>	Area north of Fort Churchill, Manitoba
1953	<i>Bull Dog I</i>	Area around Tulita (Fort Norman) and Norman Wells, NWT
1954	<i>Bull Dog II</i>	Area around Fort Churchill and Baker Lake
1954	<i>Loup Garou</i>	Area around Sept-Îles, Quebec
1955	<i>Bulldog III</i>	Yellowknife, NWT

Notes

¹ Exercise Sweetbriar, vol. 1, Cover Letter and Narrative History, Department of the Army, The Adjutant General's Office, NARA, RG 409, entry (NM3) 429, box 3, file Narrative History - Exercise Sweetbriar; and Exercise Sweetbriar, vol. III, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.

² Exercise Sweetbriar, vol. 3, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.

³ Bernd Horn, *Bastard Sons: An Examination of Canada's Airborne Experience, 1942-1955* (St. Catharines: Vanwell Publishing Limited, 2001), 80; Bernd Horn, "Gateway to Invasion or the Curse of Geography?: The Canadian Arctic and the Question of Security," in *Forging a Nation: Perspectives on the Canadian Military Experience*, Bernd Horn ed. (St. Catharines: Vanwell Publishing Limited, 2002), 309.

⁴ Quoted in *Time* (7 June 1948).

⁵ For the strongest indictment of the MSF see: Horn, *Bastard Sons*, 16. See also: David A. Charters, "Five Lost Years: The Mobile Striking Force, 1946-51," *Canadian Defence Quarterly* 7:4 (Spring 1978): 44-47, and Sean Maloney, "The Mobile Striking Force and Continental Defence, 1948-1955," *Canadian Military History* 2:2 (Autumn 1993): 75-88.

⁶ "Guide to Planning and Execution of Operations in the North," DHH, 122.3M3 (D2), ii. The Army's operational experiences in the early Cold War period were inextricably linked to the joint research conducted at Fort Churchill, which also served as a hub for many of the exercises. As an American report noted, the activities at Churchill provided both armies with the experience, materials, and equipment they needed to function "on a front hitherto neglected and now of prominent significance – the Arctic." "An Introduction to Churchill and Surrounding Area, by 7099th ASU," NARA, RG 156, entry 646-A, file An Introduction to Churchill, Fort Churchill and Surrounding Area; 1st Lieutenant C.C. Moore, Unit Historical Report, 1 July 1948 to 30 June 1949, Headquarters, 7099th Area Service Unit, NARA, RG 319, entry (NM3) 429, box 4750, file Historical Report - 7099th ASU, 1st Arctic Test Detachment.

⁷ See for example: Robert Bone, *The Canadian North: Issues and Challenges*, 4th ed. (Don Mills: Oxford University Press, 2012), 2-4.

⁸ These barren lands, encompassing 1.1 million square miles, covered 32 percent of Canada's land mass. "Guide to Planning and Execution of Operations in the North," DHH, 122.3M3 (D2), 1. See also: J. Tuzo Wilson, "Winter Manoeuvres in Canada," *Canadian Geographical Journal* 32:33 (1946): 88-93, and Ommond McKillop Solandt, "Exercise 'Sweetbriar'," 30 March 1950, *The Empire Club of Canada Addresses* (Toronto): 276-93, speeches.empireclub.org/62437/data.

⁹ Kendrick Lee's research paper on "Arctic Defences," published in *Editorial Research Reports* 2:5 (31 July 1946), represented a classic example of this approach. In making the point that "Russia was more advanced in Arctic warfare than any other nation," the author cited Soviet combat experience in Finland and the winter campaigns of the Great Patriotic War as evidence in support of his contention. What he really meant was that the Soviet Army was highly experienced in winter warfare. "Arctic Push Button War 'Out': Winter Too Tough for Army," published in the *Winnipeg Tribune* on 10 May 1949, dealt with a series of trials that had been conducted at Churchill the previous winter. The author emphasized the "cold arctic," claiming that "keeping alive (was the) biggest problem." The article went on to recount problems raised by

extreme wind chills and the necessity of training troops to load sleds and toboggans, to ski, to pitch a tent, and to shelter in snowbanks. In short, "arctic" was equated directly to "winter." American Lieutenant Colonel Joseph J. Peot's article "The Arctic Can be Our Ally," *Military Review* 31:11 (February 1952), fell into the same trap by depicting the Arctic as an area "where conditions of snow and extreme cold make necessary the use of special Arctic equipment and training."

¹⁰ See: Andrew B. Godefroy, *In Peace Prepared: Innovation and Adaptation in Canada's Cold War Army* (Vancouver: UBC Press, 2014), 91, and contrast with Kenneth Eyre, "Custos Borealis: The Military in the Canadian North," unpublished Ph.D. thesis (University of London - King's College, 1982), 285-86, 161.

¹¹ Godefroy, *In Peace Prepared*, 85.

¹² Conclusions Reached as a Result of the Experience Gained During Exercise Yukon, NARA, RG 337, entry (NM5) 28, box 381, file 401-410, Arctic Program.

¹³ C.P. Stacey, *The Military Problems of Canada* (Toronto: Ryerson Press, 1940), 5.

¹⁴ For an introduction to Swedish, Russian, German, American, British, and Canadian interests, see: Kenneth Eyre, "Tactics in the Snow: The Development of a Concept," *Canadian Defence Quarterly* 4:4 (Spring 1975): 7-12.

¹⁵ Canadian Army Training Pamphlet no. 6, *Instructions for Winter and Ski Training* (Ottawa: King's Printer, 1941).

¹⁶ Prior to the Japanese capture of Attu and Kiska in June 1942, the U.S. Army did not consider the Arctic to be of primary importance and naively assumed that a mountain-trained unit could operate in cold weather anywhere. The Japanese invasion, however, convinced the U.S. Army that it had to improve its Arctic capabilities. Shortly after, the service established the Alaskan Department Development Board at Fort Richardson, where researchers worked to establish special clothing and equipment for wet-cold and dry extreme cold conditions. Headquarters, Army Arctic Indoctrination School, "Background of Cold Weather Training and Experimentation," NARA, RG 338, entry 37042, box 826, file Army Arctic Center, Arctic Training Doctrine. Early during the war, U.S. Army interest in cold weather operations centred on Camp McCoy, Wisconsin, where units like the 10th Mountain Division trained in winter warfare.

¹⁷ Vice-Admiral Lord Louis Mountbatten, the British Chief of Combined Operations, conceived *Plough* as a diversionary operation that would employ specially trained and equipped troops to operate across snow and carry out sabotage raids on Norwegian hydroelectric facilities, thus diverting German forces from the intended invasion area of Normandy. Great Britain was unable to produce a highly mobile over-snow vehicle in sufficient time, however, and the concept was offered to General Marshall, who accepted it on behalf of the United States. The American agencies that were assigned the responsibility of producing the vehicle, eventually christened the "Weasel," used the services of the National Research Council of Canada in the research and development stage. Canada also undertook to develop an armoured snowmobile of its own design. Eventually, the *Plough* project was dropped in the autumn of 1942 due to a lack of transport aircraft to support the operation. The importance of *Plough* to the development of a winter warfare capability was that it engendered the development of two vehicles specifically designed for cross-snow operations. Although neither vehicle ultimately proved to be totally acceptable in its designed role, they both were important first steps in solving the all-important winter mobility problem.

¹⁸ See for example: Wilson, "Winter Manoeuvres in Canada."

-
- ¹⁹ *Exercise Eskimo*, "Briefing on Exercise Eskimo for Visiting Senior Officers from, U.K., U.S.A. and Canada" (henceforth Ex Eskimo Briefing), 21 January 1945, Appendix 17, DHH, 112.352 (D7).
- ²⁰ For an overview of the three exercises see: Hugh Halliday, "Recapturing the North: Exercises 'Eskimo,' 'Polar Bear' and 'Lemming' 1945," *Canadian Military History* 6:2 (Autumn 1997): 29-38.
- ²¹ Ex "Eskimo," undated (probably summer 1945), DHH, 746.009 (D17). All subsequent references to this exercise are from this source.
- ²² Winter Warfare Research Programme, 1944-45 – Exercise Eskimo (Dry Cold), DHH, file 746.013 D2. The exercise study group further advised that only vehicles operating in the forward areas needed an over-snow capability. It was content that the rear area vehicles could safely remain road-bound without affecting the tempo or security of combat manoeuvre. Given that the authors' analysis of tactical doctrine led them to conclude that each of the many frozen lakes in the sector was a potential landing ground for enemy airborne troops, one must question the validity of accepting a logistic tail that could only move on prepared and maintained roads. If the authors of the report had had the opportunity to interview a Russian survivor of the Winter War's Battle of Suomussalmi, which was fought on terrain almost identical to that of northern Saskatchewan, they might have drawn different conclusions. During the Battle of Suomussalmi (7 December 1939-8 January 1940), Finnish forces – with solid leadership and fighting on familiar terrain – managed to defeat a Soviet force that was vastly superior in numbers and heavy equipment using mobility, unorthodox tactics, equipment suited to the winter conditions, and simple planning. See: John Hughes-Wilson, "Snow and Slaughter at Suomussalmi," *Military History* 22:10 (January-February 2006): 46-52.
- ²³ Canadian Army Operational Research Group Report 28, "Polar Bear," 15 July 1945, DHH, 746.083 (D20). All subsequent references to this exercise are from this source.
- ²⁴ *Lemming* also served the purposes of the Department of Mines and Resources, which had expressed an interest in using over-snow vehicles to supply survey parties which they hoped to dispatch to Victoria and Banks Islands during the winter of 1945-46. *Winter Trials: Tests 1944-45*, "Exercise Lemming," 1 March 1945, 314.009 (D179).
- ²⁵ "Exercise Lemming, Lessons Learned: Winter Exercises, 1945-54," DHH, 81/675.
- ²⁶ Cold Weather Trials: *Exercises Ex Lemming CAORG Report* no. 25, 24 May 1945, DHH, 746.083.
- ²⁷ The M7 half-track was deemed unsuitable for Arctic operations. Cold Weather Trials: *Exercises Ex Lemming CAORG Report* no. 25, 24 May 1945, DHH, 746.083.
- ²⁸ Post-War Canadian Defence Interests in United States Defence Projects in Northwest Canada, Preliminary Draft by Army Representatives on Joint Drafting Group, Working Committee on Post-Hostilities Problems, 6 July 1945, *Documents on Canadian External Relations (DCER)*, vol. 11, 1944-45, 1582.
- ²⁹ Exercise Sweetbriar, vol. III, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ³⁰ Considerable publicity attended the completion of *Musk Ox*, but the Canadian government made no attempt to capitalize on this national and international attention and, in fact, tended to play down the operation. The minister of national defence, speaking in the House, said, "There is nothing secret about this expedition; it is a very small one." *Debates*, 14 December 1945, 3552-53. Despite the "non-secretive" nature of the expedition, the exercise report was not classified as an open source until, at Eyre's request, it was declassified on 25 November 1975. In some respects, it is surprising that

Canada did not attempt to develop the sovereignty implications of the expedition. Certainly, the government had often expressed concern over the extent of wartime American military development in the North and American long-term commercial designs on the region. No evidence could be found that would indicate that either the Canadian military or government considered this option. This makes the title of Hugh A. Halliday's article "Exercise 'Musk Ox': Asserting Sovereignty 'North of 60,'" *Canadian Military History* 7:4 (2012): 37-44, rather peculiar.

³¹ Ex "Musk-Ox," DHH, 746.033 (D2).

³² House of Commons, *Debates*, 14 December 1945, 3552-53.

³³ On *Musk Ox* see: G.W. Rowley, "Exercise Musk Ox," *Geographical Journal* CE:4-6 (October 1947): 175-85; J.T. Wilson, "Exercise Musk-Ox, 1946," *Polar Record* 5:33 (December 1947): 14-27; Patrick Baird, "Musk Ox Retold," *North* 25:5 (September/October 1978): 24-44; Halliday, "Exercise 'Musk Ox'"; and Kevin Mendel Thrasher, "Exercise Musk Ox: Lost Opportunities," unpublished M.A. thesis (Carleton University, 1998).

³⁴ French Army Scientific Bureau in *Revue des Troupes Coloniales* 1946 (trans. in "Polar Expeditions," *Military Review* 27:1 (April 1947)).

³⁵ Press Analysis Section C.I.S. – *Canadian Embassy, Washington, D.C. Exercise Musk Ox*, DHH, 314.009 (D15).

³⁶ Headquarters, Army Arctic Indoctrination School, "Background of Cold Weather Training and Experimentation," NARA, RG 338, entry 37042, box 826, file Army Arctic Centre, Arctic Training Doctrine.

³⁷ Intelligence Research Project, Intelligence Division, WDGS, Possibilities of Trans-Arctic Attack on the United States, 13 January 1947, NARA, RG 319, entry (NM3) 82, box 2894, file Project 3506 - Possibilities of a Trans-Arctic Attack, 1947; File Report on the Arctic, Atlantic Division, Air Transport Command, NARA, RG 319, entry (NM3) 82, box 2975. On the "gateway to invasion" idea see also: Horn, "Gateway to Invasion or the Curse of Geography," 307-32.

³⁸ Maloney, "The Mobile Striking Force and Continental Defence," 77.

³⁹ Headquarters, Army Arctic Indoctrination School, "Background of Cold Weather Training and Experimentation," NARA, RG 338, entry 37042, box 826, file Army Arctic Centre, Arctic Training Doctrine.

⁴⁰ Horn, *Bastard Sons*, 75, and chapter three in this volume.

⁴¹ Alfred James Tedlie, "'Winter and Rough Weather': Fort Churchill 1946-1964 in Defence of Northern Canada," unpublished M.A. thesis (University of Victoria, 1986), 60. The Canadians started a northern research program at Churchill in the spring and summer of 1946, with the summer research consisting mostly of equipment and weapons tests.

⁴² Memorandum by Joint Canadian-United States Military Cooperation Committee, 23 May 1946, *DCER*, vol. 12, 1946, 1615-23.

⁴³ Andrew Iarocci, "Opening the North: Technology and Training at the Fort Churchill Joint Services Experimental Testing Station, 1946-64," *Canadian Army Journal* 10:4 (Winter 2008): 75.

⁴⁴ An Introduction to Churchill and Surrounding Area, by 7099th ASU, NARA, RG 156, entry 646-A, box A764. According to Andrew Iarocci, "Most significant was its geographic location at an ecotone, a transitional zone between two ecological systems: the arctic barrens to the north and the boreal forest to the south. As such, the terrain around Churchill broadly represented the character of arctic lands across the north." Iarocci, "Opening the North," 76.

-
- ⁴⁵ The Combined Experimental and Training Station, Fort Churchill, DHH, 91/171. The railhead, port, and town at Churchill were located at the mouth of the Churchill River, while the military camp was about five miles eastwards along the coast of the Bay. On 1 October 1946, the site was officially passed from the Department of Transport to the Canadian Army, which quickly renamed it Fort Churchill.
- ⁴⁶ Tedlie, "Winter and Rough Weather," 41.
- ⁴⁷ "No Big Arctic War Believed Possible: Extensive Tests Said to Show Weather Prevents Use of Armies or Even Brigades," *New York Times* (10 May 1949).
- ⁴⁸ The Combined Experimental and Training Station, Fort Churchill, DHH, 91/171.
- ⁴⁹ Tedlie, "Winter and Rough Weather," 118.
- ⁵⁰ The Combined Experimental and Training Station, Fort Churchill, DHH, 91/171.
- ⁵¹ Extracts from the Report of the Training Wing, Fort Churchill and The Combined Experimental and Training Station, Fort Churchill, DHH, 91/171.
- ⁵² Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 09.
- ⁵³ J.L. Collins Jr., "The Army Arctic Indoctrination School," *Military Review* 28:8 (August 1949): 28.
- ⁵⁴ *Calgary Herald* (3 July 1947).
- ⁵⁵ House of Commons, *Debates*, 16 June 1955, 4870.
- ⁵⁶ *Halifax Herald* (9 May 1949).
- ⁵⁷ House of Commons, *Debates*, 15 February 1951, 384.
- ⁵⁸ *Halifax Herald* (9 May 1949).
- ⁵⁹ Colonel Paul V. Kane, "If War Comes to the Arctic," *Military Review* 27:10 (January 1948): 25.
- ⁶⁰ See: Horn, *Bastard Sons*, and Horn, "Gateway to Invasion or the Curse of Geography."
- ⁶¹ Exercise Haines, Whitehorse, December 1947, DHH, 91/285.
- ⁶² Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 9.
- ⁶³ Minutes of the Permanent Joint Board on Defence, 1947, NARA, RG 59, entry 1181, box 15, file 1947; Conclusions Reached as a Result of the Experience During Exercise Yukon, NARA, RG 337, entry (NM5) 28, box 381, file 401-410, Arctic Program.
- ⁶⁴ Headquarters, Army Arctic Indoctrination School, "The Friendly Arctic Conference," NARA, RG 338, entry 37042, box 826, file Army Arctic Centre, Arctic Training Doctrine.
- ⁶⁵ Tedlie, "Winter and Rough Weather," 139.
- ⁶⁶ On the MSF, see Horn, *Bastard Sons*. After 1954, the reality of the situation was recognized by the Department of National Defence when the three independent battalions were styled the Defence of Canada Force (DCF). Reflecting the lessened importance of the North, the DCF was reduced to a single reinforced company per battalion after 1958.
- ⁶⁷ "Exercise Sweetbriar and Exercise Sun Dog I," *The Arctic Circular* 3 (September 1950), 34.
- ⁶⁸ Report on Ex "Sun Dog One," DHH, 736.033 (D4).
- ⁶⁹ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2), and Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675. Historians Andrew Iarocci and Matthew Wiseman have explored several of these northern

-
- exercises, particularly *Sun Dog I*. See: Iarocci, "Opening the North," and Matthew Wiseman, "The Development of Cold War Soldierly: Acclimatisation Research and Military Indoctrination in the Canadian Arctic, 1947-1953," *Canadian Military History* 24:2 (2015): 127-55.
- ⁷⁰ Exercise Sun Dog III: Opening Narrative, DHH, 181.0004 (D7).
- ⁷¹ "Exercise Eager Beaver," *Arctic Circular* 5:2 (February 1953), 22.
- ⁷² Exercise Prairie Tundra in Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ⁷³ Exercise Bull Dog I in Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ⁷⁴ Summarizing the press reports on the exercise that appeared in British newspapers, *Polar Record* concluded that the failure of the infantry to reach its objective indicated that paratroops could not be relied on as an effective striking force in Arctic regions. "Canadian Combined Forces 'Exercise Bull Dog II', 1954," *Polar Record* 7:51 (September 1955): 492.
- ⁷⁵ Final Report, Bull Dog III, DHH, 327.033 (D2).
- ⁷⁶ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ⁷⁷ Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 09.
- ⁷⁸ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ⁷⁹ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ⁸⁰ Exercise Sweetbriar, vol. III: Report of Canadian Army, pg. 96, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ⁸¹ "An Appreciation on the Employment of the Mobile Striking Force in the Defence of Canada," 19 November 1949, DHH, 112.3 M2 (D400).
- ⁸² "Movement and Mobility," in A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ⁸³ E.C. Gibson, "Summer Arctic Operations," *Military Review* 32:7 (October 1952): 50.
- ⁸⁴ "An Appreciation on the Employment of the Mobile Striking Force in the Defence of Canada," 19 November 1949, DHH, 112.3 M2 (D400).
- ⁸⁵ Exercise Sweetbriar, vol. III, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ⁸⁶ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675. As helicopters became more common in the military inventory, increasing emphasis was placed on "heliborne" operations in an attempt to solve the problems posed by the summer terrain. Lieutenant Colonel John S. Zimmerman, "Arctic Airborne Operations," *Military Review* 28:8 (August 1949): 28.
- ⁸⁷ Exercise Sweetbriar, vol. III, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ⁸⁸ Sleep: Progress Report on Personal and Tent Group Equipment Required for One Infantry Company on Northern Military Operations, June 1953, LAC, RG 85, vol. 300, file 1009-2, vol. 6.
- ⁸⁹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ⁹⁰ Wiseman, "The Development of Cold War Soldierly," 150.
- ⁹¹ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ⁹² Exercise Sweetbriar: Address Given to the USI by Major-General Matthew Penhale, LAC, MG31-G21, vol. 5, Exercise Sweetbriar.

-
- ⁹³ Lessons Learned: Winter Exercises 1945-54, DHH, 81/675.
- ⁹⁴ Wiseman, "The Development of Cold War Soldierly," 127-55. For a more general overview see: D.J. Goodspeed, *DRB: A History of the Defence Research Board of Canada* (Ottawa: Queen's Printer, 1958).
- ⁹⁵ Exercise Sweetbriar, vol. II, Detailed Discussions Recommendation on Maneuver Objectives, 35, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. II.
- ⁹⁶ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ⁹⁷ Lessons Learned: Winter Exercises 1945-54, DHH, 81/675.
- ⁹⁸ Hanson W. Baldwin, "Air Power is Arctic Key: Operations aloft Showed Efficiency in War Game – Ground Forces Profited by Training," *The New York Times* (26 February 1950).
- ⁹⁹ A Soldier's Guide to the North (Ottawa: Directorate of Military Training, 1955), 3-5.
- ¹⁰⁰ Exercise Sweetbriar, vol. III: Report of Canadian Army, pg. 96, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ¹⁰¹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁰² Exercise Sweetbriar, vol. III: Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ¹⁰³ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁰⁴ Exercise Loup Garou in Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁰⁵ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁰⁶ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁰⁷ Iarocci, "Opening the North," 88.
- ¹⁰⁸ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ¹⁰⁹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹¹⁰ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ¹¹¹ Ibid.
- ¹¹² Iarocci, "Opening the North," 89.
- ¹¹³ Exercise Sweetbriar, vol. III: Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ¹¹⁴ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹¹⁵ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ¹¹⁶ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹¹⁷ Exercise Sweetbriar, vol. III: Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.
- ¹¹⁸ "Report on Exercise Sun Dog III by the Air Force Commander," n.d., DHH, 181.003 (D2627).
- ¹¹⁹ Shoo Fly I in Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹²⁰ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675. See: Iarocci, "Opening the North," for more detail on the equipment tests undertaken at Churchill, particularly on vehicles and other forms of transport.
- ¹²¹ Sleep: Progress Report on Personal and Tent Group Equipment Required for One Infantry Company on Northern Military Operations, June 1953, LAC, RG 85, vol. 300, file 1009-2, vol. 6.
- ¹²² "An Introduction to Churchill and Surrounding Area, by 7099th ASU," NARA, RG 156, entry 646-A, file "An Introduction to Churchill, Fort Churchill and Surrounding

Area"; 1st Lieutenant C.C. Moore, Unit Historical Report, 1 July 1948 to 30 June 1949, Headquarters, 7099th Area Service Unit, NARA, RG 319, entry (NM3) 429, box 4750, file "Historical Report - 7099th ASU, 1st Arctic Test Detachment."

¹²³ "No Big Arctic War Believed Possible." On Canadian Army Operational Research Establishment (CAORE) studies into Arctic and Subarctic warfare during this period, see: Godefroy, *In Peace Prepared*, 86, 89-91.

¹²⁴ Committee on Geophysics and Geography, Panel on Arctic Environments: Conduct of Military Operations on Land in Arctic and Subarctic Environments, 1 June 1951, NARA, RG 330, entry 341A, box 171, Panel on Arctic Environment, folder 1, Military Operations in Arctic.

¹²⁵ Exercise Sweetbriar, Address Given to USI by Major General MHS Penhale, LAC, MG31-G21, vol. 5, Exercise Sweetbriar.

¹²⁶ Exercise Sweetbriar, vol. III, Report of Canadian Army, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III; Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 09. Even as the Army grew more experienced in northern operations, the movement of troops from south to north continued to be a major problem. During Exercise *Bull Dog I*, the time between the first warning of the lodgement and the arrival of the first company group in the assault area was four days – a delay that the Canadian Army wanted to improve. Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.

¹²⁷ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).

¹²⁸ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.

¹²⁹ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).

¹³⁰ *Ibid.*

¹³¹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.

¹³² Exercise Sweetbriar, vol. 1, Cover Letter and Narrative History, Department of the Army, The Adjutant General's Office, NARA, RG 409, entry (NM3) 429, box 3, file Narrative History - Exercise Sweetbriar.

¹³³ Iarocci, "Opening the North," 89.

¹³⁴ See: P. Whitney Lackenbauer, *The Canadian Rangers: A Living History* (Vancouver: UBC Press, 2013), 152-77.

¹³⁵ Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 09.

¹³⁶ Exercise Sweetbriar, Address Given to USI by Major General MHS Penhale, LAC, MG31-G21, vol. 5, Exercise Sweetbriar.

¹³⁷ *Ibid.*

¹³⁸ The post-exercise report from *Sweetbriar* stressed that "the fear of being left out to die of exposure must be combated by an efficient organization for the recovery of casualties." Exercise Sweetbriar, vol. III: Report of Canadian Army, pg. 54, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.

¹³⁹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.

¹⁴⁰ Exercise Sweetbriar, vol. III: Report of Canadian Army, pg. 52, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. III.

¹⁴¹ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.

-
- ¹⁴² The emphasis on knowledge and understanding are present in most Canadian after-action reports. This was also the central focus of the U.S. military's "Friendly Arctic" conference held in 1947. See: The Friendly Arctic Conference, 1947, NARA, RG 338, entry 37042, box 826, file Army Arctic Center, Arctic Training Doctrine.
- ¹⁴³ S.H. Woodend, "Report by the Operational Research Group Observer with the Enemy Force on Sun Dog Three," DHH, 181.009 (D3434).
- ¹⁴⁴ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁴⁵ Exercise Sweetbriar, Address Given to USI by Major General MHS Penhale, LAC, MG31-G21, vol. 5, Exercise Sweetbriar.
- ¹⁴⁶ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675. Commanding officers were told not to bring men with domestic problems on northern operations, with the Army deeming them "poor psychological risks." A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).
- ¹⁴⁷ Abstract of Reports on Canadian Army Training, Trials and Tests, Winter 1948-1949, Canadian Army Headquarters, June 1949, University of Toronto Archives, B93-0050, box 51, file 09.
- ¹⁴⁸ Lessons Learned Winter Exercises 1945-54, DHH, 81/675.
- ¹⁴⁹ "Cocoon-like existence or individual hibernation" is terminology used in United States Army, *Soldier's Handbook for Individual Operations and Survival in Cold-Weather Areas* (Washington, D.C.: 1986), 1-2.
- ¹⁵⁰ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁵¹ Halliday, "Exercise 'Musk Ox,'" 40-41.
- ¹⁵² Canadian Army Headquarters, *A Soldier's Guide to the North* (Ottawa: Directorate of Military Training, 1955), 6.
- ¹⁵³ Exercise Sweetbriar, vol. II, Detailed Discussions Recommendation on Maneuver Objectives, pg. 34, NARA, RG 409, entry (NM3) 429, box 3, file Exercise Sweetbriar vol. II.
- ¹⁵⁴ Iarocci, "Opening the North," 89.
- ¹⁵⁵ Canadian Army Headquarters, *A Soldier's Guide to the North* (Ottawa: Directorate of Military Training, 1958), 93-95.
- ¹⁵⁶ A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2). See also: National Research Council, Observations on a Mobile Arctic Military Force: The Health, Physical Fitness and Nutrition of Exercise Musk Ox: Report to the Association Committee on Army Medical Research, NARA, RG 319, entry 82(A1), box 2480, file "Observations of a Mobile Arctic Force."
- ¹⁵⁷ Exercise Sweetbriar, vol. 1, Cover Letter and Narrative History, Department of the Army, The Adjutant General's Office, NARA, RG 409, entry (NM3) 429, box 3, file Narrative History - Exercise Sweetbriar.
- ¹⁵⁸ Lessons Learned: Winter Exercises, 1945-54, DHH, 81/675.
- ¹⁵⁹ Winter Warfare Research Programme, 1944-1945 – Exercise Eskimo (Dry Cold), DHH, 746.013 (D2) in Halliday, "Recapturing the North," 29.
- ¹⁶⁰ Howard quoted in: Matthew Farish, "Frontier Engineering: From the Globe to the Body in the Cold War Arctic," *Canadian Geographer* 50:2 (2006): 181.
- ¹⁶¹ On these themes see: Farish, "Frontier Engineering," 177-96; P. Whitney Lackenbauer and Matthew Farish, "The Cold War on Canadian Soil: Militarizing a Northern Environment," *Environmental History* 12:4 (2007): 920-50; and Matthew Farish, *The Contours of America's Cold War* (Minneapolis: University of Minnesota Press, 2010).

¹⁶² For example, between 1952 and 1954, more than 2,200 Army personnel participated in training or research at Fort Churchill to form a sturdy nucleus of soldiers with northern experience. Canadian Army Needs at Fort Churchill, 28 January 1955, LAC, RG 24, vol. 8152, file 1660-15 (vol. 4).

¹⁶³ Maloney, "The Mobile Striking Force and Continental Defence," 86.

¹⁶⁴ One striking aspect of the Army's intense involvement with the North during the 1950s was the simple fact that all exercises were conducted on the mainland. The Army did not venture into the Arctic Archipelago at all. There are obvious reasons for what seems today to be a strange void; most of them are associated with peacetime limitations. An advanced base was needed for administrative and safety reasons. There were simply more settlements with the appropriate facilities in the treeline. Churchill, in particular, was an ideal training site and in time came to be used almost exclusively for exercises. On the other hand, considering that the main requirement of a support base was that it have a suitable airport, there were three sites on the islands that met this qualification: Cambridge Bay on Victoria Island, Frobisher Bay on Baffin Island, and Resolute on Cornwallis Island. The Mobile Striking Force concept prepared in September 1951 envisioned that the most likely enemy targets for a lodgement in the Archipelago would be these air strips, in particular the facilities at Resolute Bay. If this happened, the MSF striking concept advised against launching an airborne assault on the Arctic islands. "Since we may not be able to use Resolute Bay or carry out an airborne attack on it, it is likely that operations against targets in the extreme Northern Islands will have to be carried out by long range bomber aircraft," the report concluded. Given the logistical nightmare of establishing advanced bases to support an airborne operation, and in view of the limited enemy action that would be involved in any lodgement in the Archipelago, the defence plan called for the situation to be dealt with using an air strike. With these parameters in mind, "The employment of parachutists could then be planned for a much smaller area limited by Canada's north shore line." "Mobile Striking Force Concept," Appendix 'A' to "Mobile Striking Force – Advance Base Requirements," September 1951, DHH, 112.3 M2 D371. The possible value of a large-scale Army exercise as a method of asserting sovereignty in the High North does not seem to have occurred to Canada's leaders at the time, nor was there a perceived requirement.

¹⁶⁵ On this topic, see Lackenbauer, *The Canadian Rangers*.

¹⁶⁶ *Ibid.*

¹⁶⁷ Godefroy, *In Peace Prepared*, 91.

¹⁶⁸ Godefroy, *In Peace Prepared*, 87-88, supplemented by A Guide to Planning and Execution of Operations in the North, DHH, 112.3M3.003 (D2).



3

“An Unusual Voyage in Far Northern Waters”:

The Royal Canadian Navy’s First Post-War Forays into the Arctic, 1946-50¹

Richard O. Mayne*

No one in Canada knew it was there. The automatic weather station set up on the shore of northern Labrador by the German submarine U-537 in October 1943 was undiscovered until 1981, when a German researcher alerted Canadian authorities. Yet the fact that the Royal Canadian Navy (RCN) virtually ignored the country’s northern littoral during the Second World War was understandable. Despite this single incursion into what at the time was the British colony of Newfoundland, Germany did not have the technology to threaten Canada’s North. This state of affairs quickly changed in the immediate postwar period.² The emergence of the Soviet Union as a threat to Western security and the development of new technologies, such as long-range aircraft, made the Canadian Arctic a potential front line in a future conflict.

At least, that was the conclusion drawn by the United States Navy (USN), whose increased interest and activity in the Arctic raised Canadian concerns about sovereignty. This created an awkward situation for the RCN, which was caught between a worried ally and a new adversary, who were both eyeing a region of the nation in which Canadian forces had little tactical or operational experience.

Important studies have addressed the larger strategic context of challenges to Canadian sovereignty in the Arctic during and immediately after the Second World War.³ This article, by contrast, focuses on the

* Originally published in *Canadian Military History* 22, no. 4 (2013): 35-44.

RCN's activities in the Arctic between 1946 and 1950 from a tactical and operational perspective. It does so because this approach yields important insights into the RCN's attitudes towards the Arctic and the unique operational challenges it faced in this region. Indeed, the operational records from this period (which show that the RCN only initiated one exercise, two northern deployments, and a scientific expedition⁴) suggest not only that the Canadian Arctic was "the sole domain of the USN," but also that the RCN failed to represent the national interests in the North prior to the commissioning of HMCS *Labrador*, the Navy's first (and only) icebreaker, in 1954.⁵ However, closer examination of these documents reveals that after 1945, the Navy gave the Arctic a high priority and stretched its extremely limited resources as much as possible to establish a presence there, in spite of the challenges posed by the great distances and extreme environment.

There were two things that the Americans had come to accept about the Arctic in late 1945. The first was that growing tensions with their former Soviet partners would increase the strategic significance of the region, while the second was that any defence preparations in the Arctic would involve thorny negotiations with their Canadian allies. Certainly, that was the conclusion drawn by historian George Stanley, who observed that the American government's 1946 unilateral announcement of the dispatch of a U.S. Navy expedition to Melville Island "had ... the effect of spurring Canada into a greater watchfulness [and] activity in Arctic development."⁶ In reality, this supposed trigger to Canadian naval involvement in the Arctic was never pulled; this myth was the product of erroneous assumptions made by an over-anxious national media.⁷ Not only did the Americans ask permission to visit and establish a weather station on the island, but they also respected the fact that the Canadian cabinet had deferred a decision on whether to commit to this venture until 1947.⁸

Although the significance of the Melville Island incident has been exaggerated, there is ample evidence that Prime Minister William Lyon Mackenzie King's Liberal government did not want Canada to be the spark that ignited the simmering tensions between the U.S. and Soviet Union. In fact, the government was willing to go to considerable lengths to avoid the appearance that it was siding too closely with the Americans in Arctic defence. Discussions in late 1945 regarding the joint Canadian Army-Royal Canadian Air Force Operation *Musk-Ox* (a 3,100-mile trek from Churchill, Manitoba, to Edmonton, Alberta, to test equipment in cold weather environments) provided a good example of these sensitivities. Suggestions that American observers wear Canadian uniforms to conceal

their identities were viewed with grave scepticism south of the border. Similarly, the Canadian government's desire to publicize the mission as "peaceful" and "purely scientific" in nature brought the U.S. naval attaché in Ottawa to mockingly observe that the Soviets were "not ... born yesterday" and were "not swallowing this explanation."⁹ The Americans were right, and King knew it. King brooded in his diary that the "Musk-Ox expedition" had been "folly" and had gone a long way to increasing Soviet suspicions of the West.¹⁰

The American desire to operate in the Arctic only served to heighten these Canadian fears. For instance, the appropriately named Operation *Frostbite* in early 1946 saw the large attack carrier USS *Midway* sail into Davis Strait to test the effect of cold weather on air operations. While the ships that carried out *Frostbite* did not actually sail into Canadian waters, those assigned to Operation *Nanook*, also in 1946, did manage to do so (this was the operation that was originally going to establish the Melville Island weather station). Consisting of five warships and one Coast Guard vessel, *Nanook* was primarily a reconnaissance and training exercise designed to familiarize the USN with Arctic conditions. Despite an invitation for Canadian observers to participate, King's government remained concerned about appearances. Although giving its blessing for *Nanook*, the government again asked that any publicity surrounding the exercise be kept as "undramatic as possible with emphasis on scientific knowledge acquired rather than on purely defence aspects."

King was clearly nervous about military activity in the Canadian North, yet there is a well-told story in an important popular history of the Canadian Navy that the service only took an interest in the region because the prime minister was willing to acquire a replacement aircraft carrier for HMCS *Warrior* providing that the new vessel was "Arcticized."¹¹ Upon closer examination, however, this support for the Navy operating in the North actually came from the new defence minister, Brooke Claxton, rather than King. The prime minister remained unrelenting in his belief that Canada's northern policy should be "primarily a civilian one," and while his government was willing to cooperate with the Americans in northern defence, he privately argued that "our best defence in the Arctic was the Arctic itself" – a rather naïve belief that inhospitable conditions in the North were enough to deter any aggressor.¹² His thoughts about replacing *Warrior* were even more direct, as he confided to his diary that the idea of procuring the British carrier *Magnificent* made him "shudder."¹³

Claxton, moreover, did not understand that "Arcticizing" *Magnificent* was simply a term for modifications that would allow her to operate more

comfortably in the cold weather environment of the Northwest Atlantic. The Navy, however, was willing to use this angle if it helped shore up the defence minister's support for the acquisition of the carrier. But King's attitude towards the Arctic was an obstacle. The Chief of the Naval Staff (CNS), Vice-Admiral H.E. Reid, was already in trouble with King for openly criticizing the deep budget cuts that were making it extremely difficult for the Navy to maintain its current responsibilities in the Atlantic and Pacific.¹⁴ More to the point, Reid's objection to the government's funding and manpower ceilings underscored a recurring theme that would haunt the RCN's efforts in the Arctic between 1946 and 1950: namely, that it would have to respond to the growing significance of the region with limited resources.

The fact that the RCN was struggling to meet its current commitment to two oceans led some to believe that the Navy was not interested in Arctic defence. Certainly, that was the impression formed by the Army when the vice-chief of the general staff, Major-General Churchill Mann, wrote to the Navy on 30 September 1946 advising that his boss, the chief of the general staff, was surprised that neither the RCN nor Royal Canadian Air Force (RCAF) were putting proposals for Arctic exercises before the Chiefs of Staff Committee. It was for that reason that Mann was pushing an Army proposal involving naval assets with the aim that it could be useful to start "a 'Navy baby.'" ¹⁵ The concept itself was ambitious, calling for either a 4,700- or 10,000-ton naval headquarters ship to be "frozen in" so it could support a purely Canadian Arctic Expedition from 1 September 1947 to the end of August 1948. Of course, the Navy did not have any ships that met this requirement and viewed the idea of borrowing and adapting an American Tank Landing Ship (LST) for this task as impractical. Although the concept of a northern operation was highly desirable, the Naval Staff had no choice but to recommend that the Army be told that the Navy was in no position to participate in this particular exercise.¹⁶

The rejection of the Army proposal did not mean that the Navy was bereft of its own ideas. In fact, according to the Assistant Chief of the Naval Staff, Commodore H.G. DeWolf, the Plans Division had been "cooking up" various Arctic schemes that were not entirely dissimilar to the one that the Army had contemplated. Some within the Navy wanted to act independently of the Americans, as in the Army's proposal. This was certainly the view held by the director of naval plans and intelligence, Captain H.N. Lay, who had recorded that it was inadvisable to approach the Americans about converting a Tank Landing Ship because it "would almost certainly mean the USN would wish to be the dominant partner in

the expedition, and I believe if Canada is able to do it herself, she should do so." As the prime minister's nephew, Lay undoubtedly had the inside track on King's fears of aligning too closely with the Americans, possibly explaining why he saw a unilateral approach as the Navy's best option. In the short term, the Naval Staff seemed to agree as plans were hashed out to send the destroyer HMCS *Nootka* on an "exploratory expedition" to the Arctic sometime over the summer of 1947.¹⁷

Commodore DeWolf, however, had reservations about this approach. Unconfirmed reports that a Russian submarine was operating in the Davis Strait only served to re-enforce the notion that the RCN would have to find ways to operate in the North, yet DeWolf recognized that Canada simply did not have the maritime assets to patrol the region alone.¹⁸ From his perspective, the better option was to participate in the USN's next northern deployment. Even that, however, would be a challenge, as DeWolf confided to Major-General Mann that the Navy was "anxious to send a ship along [with the Americans], if we can spare one, but to do so we will certainly stretch our resources."¹⁹

The chances of the RCN joining an American operation in 1947 were slim, but not for the reasons that DeWolf gave. Commodore Frank Houghton was disappointed to learn that the Americans were only sending a token force of three ships on what was essentially a supply mission.²⁰ Moreover, while the Americans were favourable to a Canadian ship sailing with this miniature task force, they did have some reservations about the "suitability and practicability of including light-hulled vessels, such as destroyers, in a Force of this kind."²¹ It was a salient point. This task force required an icebreaker because it was operating at a time of year when heavy ice was still present, a circumstance that drove home the reality that the RCN's current ships could only head north when ice conditions were most favourable.

The impracticality of joining the U.S. Navy's mission in 1947 was good news for Lay's plan for a purely RCN northern cruise. Indeed, because the Americans were not planning anything on the same scale as Operation *Nanook*, the Naval Staff saw little value in a joint endeavour. Capitalizing on the moment, Lay immediately pushed his own agenda, reminding the Naval Staff that no RCN warships had ever entered Hudson Strait or Bay and that "in the light of the present interest in the Canadian Arctic it is considered that such a cruise would be of benefit to the Canadian defence programme." The Naval Staff agreed and with a nationalistic fervour observed that it was "of the firm opinion that it would be preferable to undertake a northern cruise under Canadian auspices." On 29 April 1947,

the Naval Board gave its blessing, and with that the RCN had set a tight deadline for its plan to embark on its first Arctic foray.²²

The RCN clearly understood the growing importance of the Arctic as well as the urgent need to show the flag there, but it also realized that this pioneering excursion would pose new logistical and operational challenges. The planning for Operation *Iceworm*, which was the codename for the proposed cruise, clearly bears this out. The concept itself was simple: the destroyers HMCS *Nootka* and *Micmac* would embark on a five-to six-week northern familiarization deployment to conduct radio communication tests, bathythermographic explorations, and hydrographic and magnetic observations.²³ Defining the mission was the easy part; the complications soon followed. Indeed, just as the Americans had warned, the window of opportunity for operating lightly constructed destroyers in the North was small, as ice conditions dictated that the cruise would have to arrive before mid-August and leave no later than mid-September. But by far the greatest obstacle facing the planning staff was one that would haunt all the RCN's Arctic ambitions, and that was the issue of fuel.

The intended passage, from Halifax to Churchill, Manitoba, on Hudson's Bay and back, was a distance of some 4,800 miles and required the destroyers to refuel. However, the two points where this could occur – St. John's, Newfoundland, and Churchill – either did not have the suitable type of fuel or lacked sufficient quantities of it. There were two possible solutions to this problem. The first was to use tank cars to transport fuel to St. John's and Churchill, while the second was to give the soon-to-be mothballed Canadian Naval Auxiliary Vessel *Dundalk* a temporary reprieve by turning her into an Arctic refuelling vessel. Each method had its drawbacks. For instance, *Dundalk* had neither a gyroscopic compass nor radar, both of which were essential for the extreme navigational challenges in the iceberg-infested, magnetically confused North. Nevertheless, this latter option – in conjunction with a decision to send only a single destroyer (*Nootka*) – still seemed the better one. The expense of transporting naval fuel via rail to Churchill and St. John's was just too high. Worse yet, even after refuelling at St. John's, *Nootka* would have only 25 percent fuel left in reserve by the time she reached Churchill, leaving no margin for exercises or diversions en route.²⁴

Fuel was a thorny issue for other reasons as well. Getting a single destroyer to Churchill and back was going to consume a considerable amount of the RCN's yearly operational allowance. This was particularly problematic since the government's cuts had just forced the Navy to reduce that appropriation by 25 percent.²⁵ Nevertheless, the Northern

Cruise obviously had momentum, and had it not been for the intervention by the defence minister, Claxton, the RCN would have established its presence in the country's own Arctic waters in the summer of 1947. Although a letter from Houghton to an American admiral makes it clear that it was Claxton who cancelled the cruise, it is uncertain why he did so.²⁶

Despite this setback, the RCN was undeterred. In addition to forwarding a submission for the acquisition of a Canadian naval icebreaker to the defence minister, the Naval Board, at its 25 February 1948 meeting, declared the intention to dispatch HMC ships on northern cruises during ice-free periods.²⁷ The Naval Staff also took advantage of the time provided by *Iceworm's* cancellation to plan a new and far more ambitious cruise scheduled for 2-28 September 1948. Although the aims would remain the same as *Iceworm*, the forces assigned were considerably larger. Along with the destroyer *Nootka*, the RCN was now planning to send her sister ship *Haida*, as well as the new aircraft carrier HMCS *Magnificent*.²⁸ Because the minister's support for the acquisition of *Magnificent* had been partly contingent on her ability to operate in cold weather environments, this deployment so early in her career was smart politics even if she was not going to participate in the full voyage. Instead, *Magnificent* would conduct air operations with the RCAF while sailing with the destroyers up the Labrador coast to Wakeham Bay. After topping up the destroyer's fuel, *Magnificent* would head back to Halifax, while *Nootka* and *Haida* would make a stop at Erik Cove before continuing on to Churchill through Hudson Strait and Bay. On the return voyage, the destroyers, having fuelled in Churchill, would sail to Coral Harbour on Southampton Island, followed by Port Burwell, where *Dundalk* would be waiting with one last consignment of fuel.²⁹

The fear of running out of fuel and stranding a destroyer in northern waters was still a dominant anxiety, explaining why the Navy was now willing to employ both the tank car and *Dundalk* methods of refuelling that had been explored for *Iceworm*. There were other risks as well. *Dundalk* in particular was vulnerable. There was no time to install radar, and that left some officers worried about her operating off the often foggy and ice-packed Labrador coast with inadequate charts.³⁰ The fact that Captain A.H. Storrs was about to replace Captain H.F. Pullen as the commanding officer (CO) of *Nootka* was also a point of concern for the flag officer Atlantic Coast, who considered it "unfair ... to have him make his first voyage ... in these poorly charted waters."³¹ While Naval Service Headquarters saw this as overly cautious and even suspected that Pullen was lobbying to extend his command for the trip, it was in the process of

exploring other precautions, such as additional shackles for potentially deep anchorages, propeller guards, as well as assigning specialized personnel to the cruise. It also examined the possibility of acquiring twenty-five-foot motorboat cutters equipped with echo sounders that would scout out areas for the destroyers where depth information was scanty.³²

Although careful planning and preparations resulted in a cruise that was a tremendous success, there were disappointments. The Navy had already admitted that *Magnificent's* part in the exercise was "a small one," but inclement weather ensured that her role was diminished further.³³ This particular aspect of the voyage was a setback, especially since Navy and Air Force planners had gone to such lengths to produce creative war scenarios. Situations where *Magnificent's* aircraft would have covered a fictional wartime Hudson Bay-bound convoy, or conducted reconnaissance missions looking for enemy refuelling depots, would have provided invaluable training.³⁴ Instead, *Magnificent's* single day of flying was spent with her fighters countering enemy reconnaissance flights staged by an RCAF Avro Lancaster and Consolidated Canso. Much was learned from these shadowing exercises, but the true significance of *Magnificent's* presence was that the RCN had shown its resolve to send its most valuable asset into the Arctic.³⁵ It was a brief, but shining, moment, as *Magnificent* would never again sail this far north in North American waters.

This cruise was undoubtedly the high point of the RCN's involvement in the Arctic in the late 1940s, the more so since the rest of the deployment went so well. Much intelligence was gleaned, equipment successfully tested, and invaluable scientific data gathered, but the cruise was also a success for a number of other reasons. Both *Nootka* and *Haida* reported that they experienced no major difficulties with navigation and found summer operations in the region similar to the western north Atlantic in iceberg season. Future cruises were nonetheless recommended because of the limited area covered, as well as the fact that the terrain and atmosphere were so different, a point that was illustrated by the unusually deep anchorage of forty fathoms in Wakeham Bay. The deployment was also popular with the crew and offered the Navy a good public relations opportunity in Churchill as well as the smaller communities that were visited. As was anticipated, ice and fuel were the only serious concerns during the cruise; small growlers and "bergy bits" were not always detected, while the destroyers' consumption rates left "little margin for unforeseen contingencies."³⁶

The force sent to the Arctic in 1948 was a relatively large one by Canadian standards, but unfortunately, the RCN could not afford to repeat this powerful expression of sovereignty during the following year. Instead, it settled for three smaller deployments. The voyage of the frigate HMCS *Swansea*, which travelled from Halifax to Frobisher Bay and Godthaab, Greenland, between 24 August and 20 September 1949, was particularly important because it represented an attempt to continue an independent RCN presence in the North. Tasked with the same scientific explorations, familiarization, and training work started by the previous year's cruise, *Swansea's* experience was unsurprisingly similar to those of *Nootka* and *Haida*. Nevertheless, an incident at the American base on Padloping Island underscored the need for a Canadian naval presence in the Arctic. "The NCO-in-charge stated that some of his men were wondering why a Canadian Warship was in these waters," wrote *Swansea's* CO. "It was pointed out in a friendly but firm manner that this was not unreasonable since this was Canada."³⁷

The participation of HMCS *Cedarwood* and HMCS *Haida* in two separate joint ventures with the Americans did little to raise the RCN's profile in the region.³⁸ In fact, *Haida's* involvement in Exercise *Noramex* demonstrated how the RCN's limited resources left Canada with little choice but to rely on the USN to help defend its North. Designed to prevent an enemy force from turning a Labrador weather station into an airstrip, the thirty-three American ships and 3,500 Marines dwarfed the lone Canadian destroyer assigned to the exercise. The RCN had wanted to provide additional forces, but operational commitments elsewhere prevented it from doing so.

The dream of sending Canadian destroyers and frigates on yearly cruises to the North had already come to an end, but things only got worse in 1950.³⁹ Further manning reductions and anti-submarine requirements in the Atlantic and Pacific were making it hard for the RCN to join *Noramex II*, but just as it had done over the past four years, the Naval Board was willing to go to extreme lengths to scavenge personnel to man *Nootka* for this particular exercise. It was all for naught, as once again, operational factors (this time the outbreak of hostilities in Korea) placed these Arctic ambitions on the backburner.⁴⁰

The RCN would not return to the Arctic until HMCS *Labrador*, the Navy's new icebreaker, sailed into these waters in the summer of 1954, and this long gap would suggest that the RCN's capabilities did not match the large operational significance the service attached to the region. In reality, the 1948 Northern Cruise represented the type of presence that the RCN wanted regularly to maintain in the Arctic during the summer

months. Unfortunately, those ambitions could not be realized in the face of budget cuts, manning shortages, existing operational commitments, and ship limitations, as well as restrictions imposed by logistical and fuelling constraints. But one thing was clear: the Navy's desire to work in the North between 1946 and 1950 was there, even if the resources were not.

Notes

¹ The title for this article is taken from a Report of Proceeding [ROP] from HMCS *Nootka*, Directorate of History and Heritage [DHH], 81/520/8000, box 71, file 5. The author is indebted to his former colleagues at DHH, particularly the postwar naval team led by Mike Whitby, as well as members of the Arctic integrating concept team at Chief of Force Development, whose insights on defence issues related to the Canadian North helped with the development of this article.

² There is currently only one known file that deals directly with suspected U-boat operations in Hudson Bay during the Second World War. For more information see "Submarines - Enemy Activities - Activities in Arctic Ocean and Hudson Bay," Library and Archives Canada [LAC], Record Group 24 [RG 24], vol.4027, file 1062-13-22; Michael Hadley, *U-boats Against Canada: German Submarines in Canadian Waters* (Montreal & Kingston: McGill-Queen's, 1985), 163-65. While German records show that all sightings in the North were false, there was one case where a U-boat was indeed operating in Canada's northern waters. In October 1943, a landing party from U-537 erected a weather station at Martin Bay off the northern tip of Labrador. For more information see W.A.B. Douglas, "The Nazi Weather Station in Labrador," *Canadian Geographic* 101, no.6 (December 1981/January 1982): 42-47.

³ One of the best accounts of *Labrador's* efforts in the North can be found in J.M. Leeming, "HMCS *Labrador* and the Canadian Arctic," in James A. Boutillier, ed., *RCN in Retrospect, 1910-1968* (Vancouver: UBC Press, 1982), 286-87. For works that address the larger naval and maritime strategic context of the Arctic to Canada during and just after the Second World War see Shelagh Grant, *Sovereignty or Security? Government Policy in the Canadian North, 1936-1950* (Vancouver: UBC Press, 1988); Elizabeth B. Elliot-Meisel, "Arctic Focus: The Royal Canadian Navy in Arctic Waters, 1946-1949," *The Northern Mariner* 10, no.2 (April 1999): 23-39.

⁴ For an excellent summary of the scientific expedition see Isabel Campbell, "Making a Difference in Arctic Naval Research: HMCS *Cedarwood*, 1948 to 1956," *Canadian Naval Review* 8, no.1 (Spring 2012): 10-14, while an account of HMCS *Swansea's* 1949 deployment can be found in Richard Mayne, "'An Art of its Own': Corporate Knowledge, the Canadian Navy, and Arctic Operations," *Canadian Naval Review* 5, no.3 (Fall 2009): 10-16. For one of the most interesting studies that highlights the significance of a U.S. Arctic endeavour on the Canadian government's northern policy see Peter Kikkert and P. Whitney Lackenbauer, "Setting an Arctic Course: Task Force 80 and Canadian Control in the Arctic, 1948," *The Northern Mariner* 21, no.4 (October 2011): 327-58.

⁵ Tony German, *The Sea is at our Gates* (Toronto: McClelland and Stewart, 1990), 249-51.

⁶ George Stanley, *Canada's Soldiers: The Military History of an Unmilitary People* (Toronto: Macmillan, 1960), 411; Moira Dunbar and Keith Greenaway, *Arctic Canada from the Air* (Ottawa: Queen's Printer, 1956), 238.

⁷ "Ottawa Scotches US Plan to Man Weather Bases in Canadian Arctic," *Toronto Financial Post*, 20 July 1946; "Canada Must Frame Policy for Arctic," *Toronto Financial Post*, 20 July 1946.

⁸ Chiefs of Staff Committee, 9 April 1946, DHH, Raymont Collection, 73/1223, box 59, file 1301; Permanent Joint Board on Defence Journal of Discussions, 29 April 1946, DHH, Canada-United States PJBD fonds, 82/196; Cabinet Conclusions, 12 June and 27 June 1946, LAC, RG 2, vol.2638, reel T-2364; House of Commons *Debates*, 19 July 1946, 3606. The available evidence suggests that this station could not be established in 1947 because of the inability of the expedition to get to the island.

⁹ Cabinet Conclusion, 19 December 1945, LAC, RG 2, vol.2637, reel 2364.

¹⁰ William Lyon Mackenzie King *Diary*, 4 February 1946, LAC.

¹¹ German, *The Sea is at our Gates*, 250.

¹² Text of Joint Statement issued in Ottawa and Washington, 12 February 1947, DHH, 82/196, file 5, meeting 58; King Diary, 22 November 1946, LAC; Stanley, *Canada's Soldiers*, 68.

¹³ King Diary, 9 April 1948, LAC; King Diary, 9 January 1947, LAC.

¹⁴ Cabinet conclusion, 15 November 1946, LAC, RG 2, vol.2639, reel T-2364; King Diary, 13 November 1946, LAC.

¹⁵ C.C. Mann to ACNS (H.G. DeWolf), 30 September 1946, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.

¹⁶ D/DNP to DNPI, 10 October 1946, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1; Naval Staff Meeting, 28 October 1946, DHH, 81/520/1000-100/3, box 32, file 2; Naval Board meeting, 6 November 1946, DHH, 81/520/1000-100/2, box 22, file 3.

¹⁷ Naval Staff Minute, 28 October 1946, DHH, 81/520/1000-100/3, box 32, file 2; Naval Staff minute, 27 January 1947, DHH, 81/520/1000-100/3, box 32, file 3.

¹⁸ DNPI to ACNS, 21 October 1946, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.

¹⁹ DeWolf to Mann, 19 December 1946, LAC, RG 24, vol.8153, file 1660-18, vol.1.

²⁰ Report on the Engineering Aspects of the Operations of US Task Force 68, 24 November 1947, DHH, 79/134.

²¹ Houghton to Jones, 6 March 1947, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1; Jones to Houghton, 12 March 1947, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.

²² Naval Staff Meeting, 21 April 1947, DHH, 81/520/1000-100/3, box 32, file 3; Naval Board meeting, 29 April 1947, DHH, 81/520/1000-100/2, box 22, file 3.

²³ DNPI to ACNS, 23 May 1947, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1; Joint Planning Committee, 95th Meeting, 13 May 1947, LAC, RG 24, vol.8153, NSS 1660-18, vol.1.

²⁴ DNPI to ACNS, Operation Iceworm, 23 May 1947, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.

²⁵ Naval Staff Meeting, 17 March 1947, DHH, 81/520/1000-100/3, box 32, file 3; Naval Staff Meeting, 21 April 1947, DHH, 81/520/1000-100/3, box 32, file 3.

²⁶ Memo note, 18 June 1947, and Houghton to Jones, 21 June 1947, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.

²⁷ Naval Board Meeting, 25 February 1948, DHH, 81/520/1000-100/2, box 22, file 4.

²⁸ SO (Operations) to VCNS, 17 February 1948, DHH, 81/520/1650-239/2, box 105, file 7.

-
- ²⁹ A Brief History of HMCS *Nootka*, n.d., DHH, 81/520/8000, box 71, file 5; A Brief History of HMCS *Haida*, DHH, 81/520/8000, box 44, file 1; FOAC to SCNOA, Northern Cruise, 25 August 1948, LAC, RG 24, vol.11193, file ACC 1650-26 SUB I.
- ³⁰ E EinC to A/CNTS (ships), 26 July 1948, and Alterations and Additions, CNAT "Dundalk" and "Dundurn," 29 July 1948, LAC, RG 24, vol.8153, file 1660-18, vol.1.
- ³¹ FOAC to NSHQ, 19 May 1948, LAC, RG 24, vol.8153, file NSS 1660-18, vol.1.
- ³² Captain D, Nootka to FOAC, Boats Echo Sounding Gear, 10 June 1948, and Proposed Northern Cruise, 4 June 1948, LAC, RG 24, vol.11193, file ACC 1650-26 SUB I.
- ³³ SCNOA to Captain D, 9 June 1948, LAC, RG 24, vol.11193, file ACC 1650-26 SUB I.
- ³⁴ Joint RCN FOAC/RCAF 10 Group Operations Order no.1/48, and SCNOA to FOAC, 25 July 1948, LAC, RG 24, vol.11193, file ACC 1650-26 SUB I.
- ³⁵ CO *Magnificent* to FOAC, 7 December 1948, LAC, RG 24, vol.8153, file NSS 1660 18, vol.18.
- ³⁶ CO HMCS *Nootka* to FOAC, Northern Cruise 1948, 7 October 1948, LAC, RG 24, vol.11193, file ACC 1650-26 SUB I; HMCS *Haida* ROP, September 1948, DHH, 81/520/8000, box 44, file 3. That latter point was further rammed home the following year when the frigate HMCS *Swansea* was forced to deviate from her operational schedule during her Arctic cruise to rescue the RCAF resupply vessel *Malahat* off Digges Island. A Brief History of HMCS *Swansea*, n.d., DHH, 81/520/8000, box 203, file 27.
- ³⁷ HMCS *Swansea*, Report of Northern Cruise and Operation Malahat, 24 August to 28 September 1949, DHH, 81/520/8000, box 102, file 5; Maritime Group Headquarters' Operational Order, LAC, RG 24, vol.11195, file ACC 1660-41.
- ³⁸ Cedarwood feature, October 1956, DHH, 81/520/8000, box 21, file 1. *Cedarwood* was participating in a joint operation with the United States Naval Electronic Laboratory.
- ³⁹ Proposed Combined Canada-US Winter Exercise 1949-50, DHH, 73/1223, file 1324; Naval Staff Meeting, 4 April 1950, DHH, 81/520/1000-100/3, box 33, file 3; Defence Council, 8-9 May 1950, DHH, 81/609.
- ⁴⁰ Naval Board Meeting, 19 April 1950, DHH, 81/520/1000-100/2, box 23, file 1.

4

The Development of Cold War Soldiery: Acclimatization Research and Military Indoctrination in the Canadian Arctic, 1947-53

Matthew S. Wiseman*

“Great physical and mental effort is required under conditions of extreme cold and high windchill to remain aggressive. The cold and unusual conditions of life can, if allowed, impose a heavy strain on morale. Every opportunity must be taken to seek out and destroy the enemy in order to increase the strain on the enemy, to deprive him of rest and time to prepare food, and eventually destroy him.”¹

During the early Cold War period, the Canadian Arctic became a training ground for Western forces. Together with their American and British counterparts, Canadian troops took part in a series of military exercises, designed to prepare both men and equipment for cold-weather warfare.² Each exercise aimed specifically to determine infantry requirements as well as the tactical techniques and coordination methods required for military operations in extremely cold winter conditions. The most well-known exercise remains the three-month northern excursion named Operation *Musk Ox*, which combined Canada-United States military support and reinforced notions that the Canadian Arctic represented the first line of defence against a potential attack on North

* Originally published in *Canadian Military History* 24, no. 2 (2015): 127-55.

America.³ Less well known but also important to the Canadian military and defence establishment was *Sun Dog One*, a one-month exercise carried out in an effort to deduce and overcome environmental challenges unique to Arctic military operations.

Sun Dog One served a scientific as well as military purpose. During the exercise, scientists of Canada's Defence Research Board (DRB) observed trials of Canadian, American, and British cold-weather clothing and equipment. Scientists from the DRB also conducted experimental trials on participating troops as part of an acclimatization and indoctrination programme that aimed to determine the physical and psychological requirements of cold-weather soldiery. Symptomatic of broader Cold War desires to understand and overcome the natural environment, indoctrination training in the Canadian Arctic served to regulate anxieties of inadequacy and perpetuate seemingly false notions of control and power amongst planners, observers, and participants. Although training proved effective and educational, the lessons learned came at a cost. Scientists deemed some troops physically or temperamentally weak for cold-weather operations and thus less favourable for Arctic service than men whose physical and mental attributes posed no apparent or potential detriment to the morale and effectiveness of the other participating troops.

Neither *Sun Dog One* nor the cold-weather research conducted on participating troops was vital to the continental defence of North America, but both provide important insights for considering the role and structure of Canada's postwar military. According to the existing literature, the defence of Canada in the nuclear age depended primarily on a fully integrated air system that included radar and jet interceptors.⁴ Canada embraced a middle-power philosophy and bolstered its national security through multilateral and bilateral agreements. In the process, the Canadian military underwent massive reductions in operating budget and personnel strength. Defence against an increasingly hostile Soviet Union depended on international cooperation rather than independent professional standing forces. Yet Canada's defence establishment funded scientific work to investigate human performance under military training in severe cold. DRB science conducted in collaboration with the military suggests that defence officials were open to the possibility that Arctic defence might include a well-trained land element. The science speaks to postwar gender ideals as well. Officials equated adequate performance in severe cold with virile notions of masculinity. To be a Cold War Arctic soldier meant not only survival in but also the defeat of Canada's most harsh environmental elements.

Historians have only recently begun to uncover the depth of Canada's Cold War scientific activity, but recent research shows the complex integration between the Canadian national defence establishment and military.⁵ Whitney Lackenbauer and Matthew Farish have argued that postwar Western military interest in the Canadian Arctic signalled not only "the systematic consolidation of nature as a military entity, but also an extension of the scope and terms of militarization to reflect the cautious longevity of the Cold War."⁶ Situating the postwar northern military exercise in a broader environmental discourse, Lackenbauer and Farish explore the pervasive legacy of Cold War militarism in Canada in a manner that moves beyond the more traditional diplomatic or social analyses of the period.⁷ This article also examines the pervasive legacy of Cold War militarism, but it highlights human as well as environmental aspects. Although Canada's northern climate and geography significantly shaped defence policy in the early postwar years, military preparedness was also a direct corollary of defence science.

Cold-weather human testing represents an interesting aspect of military preparedness, but as a topic it remains largely unexplored by historians. This article examines the connection between military indoctrination and scientific cold-weather acclimatization research in an effort to contextualize an important aspect of Canada's Cold War legacy while also contributing to a growing international literature on human and environmental science in the early postwar period. *Sun Dog One* represents an ideal case study. During the exercise, scientists tested the physical and mental qualities of troops operating under severe cold-weather conditions. The experiments were part of an Arctic acclimatization research and indoctrination training programme, initiated to isolate the ideal male characteristics of cold-weather soldiery. In turn, Canada's defence and military establishment attempted to develop a process to isolate men deemed physically and mentally valuable to support a northern defence. *Sun Dog One* consequently provides a unique window into the development and impact of Cold War soldiery, an intriguing topic about military masculinity that provides many insights for Canadian historians and raises important questions about the ethics of human testing and defence science in the years immediately following the Second World War.

Seeds of Arctic Interest

Interest in the Arctic increased dramatically during the Second World War with the Japanese invasion of the Aleutian Islands, the establishment of British and Soviet east-west routes for the transport of aircraft, and a series of massive construction projects initiated by the United States.

North American continental defences began to take shape accordingly, as Washington funded the construction of extensive infrastructure and facilities to service “isolated” areas including the Alaska Highway, airfields to support aircraft service to Alaska, over fifty weather stations, and an oil distribution system between Yukon and the Northwest Territories named the Canol Project. The United States also acquired a lease to an air base at Goose Bay, Labrador, to serve as a location from which the air force could potentially bomb the Soviet Union and see its aircraft return.⁸ At the same time, the Canadian government agreed to co-finance the construction of early warning radar systems with the United States. Within six years of 1949, contracts stipulated the construction of the Pinetree Line, the Mid-Canada Line, and the Distant Early Warning (DEW) Line.⁹

During the 1940s, a proliferation occurred in maps oriented over the North Pole.¹⁰ Air-age globalism revealed the surprisingly close geographic proximity of the Soviet Union, and North American territory emerged expansive and vulnerable at the top. In the process, the Arctic became a frontier space of both strategic and scientific importance, an ideal laboratory for intellectual pursuit that had implications of a local and global significance. The American military embraced this logic and approached the North as a vital component of continental defence but also as one of many hostile environments to overcome. The situation led to an expansive and highly entangled relationship between military and scientific affiliations, as historians of science and the Cold War have shown.¹¹ As Matthew Farish explains in an intricate study of American knowledge production, “the Arctic frontier was *engineered*—not just in the sense of specific landscapes and bodies as sites for technical manipulation and control but also according to more general principles of development, order, and appropriation for scientific and strategic needs.”¹² Coupled with the growing tensions between the East and West, the Arctic, as both an idea and physical space, was ripe for a high-anxiety postwar “assault.”

Although the terms sovereignty and defence may seem interchangeable, in the context of the postwar security environment Canada faced two distinct threats. As fears of a Soviet attack grew, research teams, administrators, and troops pushed northward to study and occupy the largely “unknown” region. Collectively, on behalf of the Canadian government, these individuals worked to defend the North against Soviet aggression while also promoting territorial sovereignty in the midst of increasing encroachment from the United States. There was certainly mutual agreement in both Ottawa and Washington that precautions were necessary to protect the North American continent, but

at the same time, officials in Canada showed concern for the rapid increase of American activity north of the border. As noted by Rob Huebert, concerns worsened periodically in Canada when various American officials mused about the possibility of “taking control” of Canadian territory to prepare their own defences against the Soviet threat.¹³ Yet Canada was not in a position to provide the necessary resources required of a modern and effective national defence. In spite of the emerging concerns about American encroachment, Canada had little choice but to collaborate closely with its southern neighbour in defence of the North American continent.

While the nuances of early Cold War defence relations between Canada and the United States require further attention, the current body of literature seems to agree that the Americans respected Canadian claims to territorial sovereignty in the North. Rather than annex parts of the seemingly remote and ignored Canadian Arctic, Washington desired to work in collaboration with Ottawa to establish the adequate defence system that officials in both cities deemed necessary. In many ways, the situation proved quite advantageous for Canada. The government gained access to the physical and financial resources of the United States and simultaneously bolstered its defensive position against the Soviet Union. Scholars debate whether Canada sacrificed its sovereignty in the process, but diplomatic negotiations resulted in bilateral arrangements with real and lasting benefits to both Canada and the United States.¹⁴

Canada's Postwar Military

The Canadian army emerged from the Second World War lacking a large staff that could focus on national military strategy. During the early postwar period, the office of the science advisor to the chief of the general staff at Army Headquarters only had a small civilian analytical component. While a few senior Defence Research Board (DRB) officials were part of the headquarters, the professional staff of the Canadian Army Operations Research Establishment never exceeded fifteen personnel. As argued by Peter Kasurak, these circumstances proved a significant shortcoming in the directive of Army Headquarters as it faced the challenges of the emerging Soviet threat.¹⁵ Nevertheless, the Canadian government authorized the creation of an air-transportable brigade known as the Mobile Reserve. Comprised of three infantry battalions with combat support and service support units, the brigade was renamed the Mobile Striking Force (MSF) in 1948. Officials designed the MSF as a preventative land element that would deter the Soviets from establishing forward operating bases in the Canadian North.¹⁶ At the time, technology restricted long-range bombers from making roundtrip flights over the

North Pole. Continental defence, therefore, depended on the ability of the MSF to prevent the Soviets from establishing refuelling service stations on North American territory. The MSF also served to promote Canadian claims to territorial sovereignty by facilitating operational cooperation with United States forces.

Although the MSF bolstered the presence of the Canadian military in the North, scholars tend to agree that the postwar land element served only a partial role in the defence of the North American continent. This assessment finds support in the personal convictions of Canada's Minister of National Defence Brooke Claxton. Unconvinced that the Soviets posed a direct threat against the Canadian North, Claxton never spent more resources on ground defences than was politically necessary. He provided the minimum support required to sustain the MSF and restricted military funds elsewhere. Under his authority, the Canadian army did not figure prominently in either foreign or domestic policy.¹⁷

During the early postwar period, Ottawa embraced a middle-power philosophy and sought to secure Canadian sovereignty at home and abroad through involvement in international partnerships such as the North Atlantic Treaty Organization (NATO), North American Air Defence Command (NORAD), and United Nations (UN). Multilateral and increasingly bilateral agreements provided the backbone of Canadian defence. The military underwent a drastic reduction as a result, and the Mackenzie King government reallocated federal finances toward other national priorities that included veterans' benefits, family allowances, and other social welfare programs.¹⁸ Within two years of the end of the Second World War, the army was reduced in personnel strength from 478,090 to only 15,852.¹⁹

As an instrument of national power, the Canadian military suffered from a lack of coherent and durable political guidance and became both fragmented and disjointed.²⁰ While American and Canadian scientific and defensive interests largely coincided in the period, government officials in Ottawa supported research of a non-strategic orientation. Hugh Keenleyside, for instance, shared with Minister of Foreign Affairs Lester Pearson the view that Canada should support resources and research over strategy and politics.²¹ As deputy minister of mines and resources, commissioner of the Northwest Territories, and chairman of the Arctic Research Advisory Committee of the DRB, Keenleyside was a high-ranking official with a significant level of influence on northern affairs and finance spending. He received an informal education on the Canadian North and its Indigenous populations from Arctic geographers such as Vilhjalmur Stefansson, Erling Porsild, and Trevor Lloyd, and he used his

position in government to promote the spread of “industrial civilization” northward.²² Defence considerations in the North were lower on his agenda than the work of scientists, explorers, administrators, educators, doctors, and social workers.²³ He participated in the creation and subsequent activities of the Arctic Institute of North America and supported the DRB as a modern scientific establishment.

In spite of rapid demobilization and cost cutting, the Canadian military maintained a notable contribution to national security in the immediate postwar years. As argued by Andrew Godefroy, “[that] the postwar Canadian Army was ultimately capable of innovating and adapting to meet new threats alongside its two main allies under such conditions suggests that a great deal of military enterprise and innovation occurred within the institution.”²⁴ Godefroy does not suggest that all changes to the postwar military structure were novel and successful, but he nonetheless maintains that historical scholarship is too critical of the Canadian military during the early Cold War period.

Godefroy’s assessment finds support when we consider northern cooperation between the military and DRB scientists. While the air threat to North America dominated strategic considerations in Ottawa during the early postwar period, defence officials remained cognizant of the vulnerability of the Canadian North by sea and land. In advance of a potential Soviet land attack, the military turned to science to find and prepare men for the potential cold-weather battlefield. Defence planners deemed cold-climate training important to the development of troop indoctrination and preparation, and intelligence confirmed the need to prepare a defence against the shortest and most direct route over the North Pole. Canadian troops were to learn how to survive and use their weapons under Arctic conditions, while DRB scientists were to isolate the masculine characteristics required of cold-weather soldiery. These circumstances developed from a Cold War ideology in which the environment featured prominently as a “laboratory” for scientific exploitation.²⁵

Postwar Military Activity in the North

The Canadian military first tested the adequacy of military men and equipment in the North during the winter of 1945-46. Operations *Eskimo*, *Polar Bear*, and *Lemming* were designed to determine the effects of severe climatic conditions on the mobility and combat efficiency of Canada’s striking forces. The location of each exercise differed, which allowed for the testing of equipment in northern environments under varying conditions and challenges of both terrain and temperature.²⁶ Exercises *Musk Ox* and *North* occurred the following year, as the army continued to

improve its tactics, techniques, and procedures for living and fighting in severe cold-weather conditions. None of these field exercises were large-scale operations, nor were they conducted to test the ability of joint land-air operations to resist mock Soviet aggressor forces.²⁷ As a result, the army continued to conduct both individual and joint exercises with the Royal Canadian Air Force (RCAF).

Arctic warfare differed considerably from winter warfare in that its potential battlefield existed in vast spaces only reachable by air. Whereas units conducting winter warfare could rely on existing roads, railheads, and other supply infrastructure, Arctic warfare units trained to maximize self-containment and rely only on available air supply.²⁸ Canada took part in cold-weather warfare exercises in both Arctic and sub-Arctic conditions. Canadian and American military planners defined the “true” Arctic as any terrain north of the treeline, including the tundra and mountain ranges. Conversely, planners defined the sub-Arctic as any northern treed terrain, including the treed plain of northern Manitoba and Saskatchewan, the Northwest Territories, the mountains of northern British Columbia, the Yukon, and southern Alaska.²⁹

In May 1946, the United States proposed to Canada a unified Arctic defence plan on the premise that neither the oceans nor the vast territoriality of the Arctic was anymore an adequate barrier to protect the northern half of the North American continent against long-range weapons or invading armies.³⁰ In the same month, the Canadian chiefs of staff approved the formation of an Interservice Committee on Winter Warfare, with a sub-committee on winter warfare research. By 1947, defence science had expanded significantly in Canada, and the sub-committee was subsequently reorganized as the Arctic Research Advisory Committee under the chairmanship of Hugh Keenleyside, the deputy minister of mines and resources and commissioner of the Northwest Territories.³¹ The committee held its first meeting on 15 May and decided that, while science could assist military operations in the Arctic, the military could also be of considerable assistance to scientific research by providing transportation, facilities, and personnel on occasion.

Although top officials in the Canadian defence establishment showed little interest in placing standing forces in the North, support for cold-weather military exercise training ran deep. Speaking to the House of Commons on 17 March 1950, Minister of National Defence Brooke Claxton spoke about his experience as an observer of Exercise *Sweetbriar*, which took place during the winter of 1949-50.³² The exercise tested the latest developments in clothing, food, aircraft, vehicles, weapons, and other equipment and material, but its primary objective was to develop doctrine

and procedures for the employment of combined Canada-United States forces operating in the sub-Arctic.³³ Over five thousand combined forces took part in the ten-day exercise, which also included 978 motor vehicles and more than 100 aircraft. *Sweetbriar* was the largest joint Canada-United States northern military exercise at the time, so when speaking to the House, Claxton congratulated all officers and men who had, in his estimation, contributed to the success of the exercise "in accordance with the best traditions of the Canadian forces." Claxton further applauded the exercise by noting specifically the effectiveness of the cooperation between the army and the air force, and between the Canadian and American troops.

Claxton was not the only top Canadian defence official to speak favourably about northern military training. A few weeks later, on 30 March, Omond Solandt, Chairman of the Defence Research Board, made an address to the Empire Club of Toronto in which he spoke about his experience as a scientific observer of *Sweetbriar*.³⁴ Echoing Claxton's comments, Solandt spoke of *Sweetbriar* with specific reference to training and equipment for combined sub-Arctic operations. The exercise did not involve new weapons and took place in weather conditions that were less severe than those encountered by both Canadian and American troops in training, but it did inspire novel equipment development and recognition of the need for further controlled cold-weather environmental training. The most important single lesson of *Sweetbriar* was, according to Solandt, the importance of and ease with which the Canadian and U.S. armies operated harmoniously and effectively in severe cold conditions. When questioned about the success of the exercise, other Canadian and American military officials who had attended as observers were noncommittal. Some expressed shock at the state of defences in the Canadian North, while others optimistically believed that joint military preparedness remedied any existing deficiencies.³⁵ With regard to both the training of men and the use of equipment in cold weather, Canada's military and defence establishment determined many weaknesses of its northern defences. The exercise also made clear that neither Canada nor the United States was ready to conduct winter warfare; additional training was required.

Exercise *Sweetbriar* displayed the potential ability of troops to operate efficiently in the sub-Arctic and demonstrate the adequacy of logistical support under such conditions.³⁶ Combined support was an essential component of Exercise *Musk Ox*, but not under the force strength that was available during *Sweetbriar*. Observers of *Sweetbriar* pointed out certain conditions incident to northern exercises that required improvement, but

overall, the exercise successfully dispelled unnecessary fears associated with cold-weather military operations. With proper clothing, equipment, and training, troops were able to manoeuvre under sub-zero temperatures with fewer actual mock casualties than estimates had forecast. Observers concluded that logistic support was adequate to maintain larger forces and ongoing military operations in Canada's northern environment. Similar conclusions were being made simultaneously about two thousand kilometres east at Fort Churchill, Manitoba, by participants and observers of military exercise *Sun Dog One*.

Sun Dog One

Exercise *Sun Dog One* was an extension of infantry training that had taken place at Fort Churchill during the winter of 1948-49. Located on the west bank of Hudson Bay in Manitoba's northeast corner, Fort Churchill's location, terrain, and harsh winter weather made it an ideal environmental locale for northern military training and scientific defence research. *Sun Dog One* comprised 251 personnel, which by comparison made the exercise significantly smaller than *Sweetbriar*.³⁷ The exercise consisted of an entirely self-contained and mobile force, which lived and travelled for nearly one month close to Fort Churchill. The tactical goal of *Sun Dog One* was to facilitate the appreciation of the probable role of armour, field artillery, and engineers in support of one infantry company operating in a severe cold-weather environment.³⁸ All appreciations assumed that supply to all units was available. The one-month time allowance enabled repetition of certain techniques and ensured time for exercise workability, photographic retakes, and variation in weather.³⁹ Planners sacrificed some measure of realism for scientific observation.

The operational concept of Exercise *Sun Dog One* envisaged the pursuit and destruction of an enemy party approximately fifty strong, which dropped near the Hudson Bay railway at Chesnaye. The exercise began on 16 February 1950 and ended nearly one month later on 15 March. Planners chose the route and terrain of the exercise specifically to test the supply and communication organization of participating personnel. The first leg of the route took troops through heavily bushed terrain on a trail prepared by a Royal Canadian Engineers test team. The remaining distance traversed flat and open tundra covered by many small lakes and sloughs. In open areas, snow was hard, shallow, and rough with wind anvils, while in treed areas it collected in deep and soft powdery drifts. Temperatures during the exercise were somewhat below the normal mean for that winter. The lowest temperature recorded was -42°C and the mean approximately -29°C. The maximum recorded wind chill was 2,300 or approximately -50°C, and the mean was 1,700 or approximately -30°C.⁴⁰

While these temperatures were comparatively higher than those of other Arctic locales from the same winter, high winds experienced during the exercise did at times drastically increase the rate of heat loss in participating troops.

Canadian exercises in winter and Arctic warfare prior to *Sun Dog One* demonstrated the limits of troops operating in demanding conditions, not of survival but of endurance. Varying topography and climate in both dry and wet cold conditions reduced the operational effectiveness of all forces. *Sun Dog One* was a combined military exercise of a tactical nature in Canada's eastern Arctic. The exercise served to test certain military assumptions about cold-weather operations and demonstrated many operational difficulties peculiar to Canada's northern environment. For instance, troops found that the same clothing that enabled them to conduct operations in the Canadian Arctic also reduced their manoeuvrability and overall effectiveness. Clothing restricted motor control, particularly during periods of high wind chill, when closed parka hoods reduced visibility and hearing. Mitts restricted dexterity of the hands and the troops' ability to handle weapons. Frequent and rapid weather changes also significantly decreased the operational effectiveness of both men and equipment during *Sun Dog One*. As noted in a diary of the exercise, the constant breakdown of snowmobiles was a dominating feature of the troop experience.⁴¹ Such reoccurring failures of equipment significantly reduced opportunity for tactical study and in turn slightly obscured the value of recorded information. Yet the exercise as a whole allowed observers to make many useful conclusions about cold-weather military operations.

Acclimatization and Indoctrination

Considering the vast range of the potential cold-weather battlefield, the acclimatization of personnel to the Arctic environment was a chief scientific concern of Canada's defence establishment early in the Cold War. While making his remarks about Exercise *Sweetbriar* to the House on 17 March 1950, Minister of Defence Brooke Claxton stated: "Fighting in the north we know requires specially trained personnel of high morale and top physical condition with first-class equipment and air supremacy. These have been our targets and we are making good progress."⁴² At the time, the logistical difficulties of the cold-weather military preparedness of both men and equipment had extended beyond the institutional capabilities of the army, or so was the belief of Canada's top military advisers.

By order of Lieutenant-General Charles Foulkes, Chief of the General Staff, the Canadian army conducted Exercise *Sun Dog One* in part to assist

the Defence Research Board (DRB) in the execution of its Acclimatization Research Programme.⁴³ Established in 1947, the DRB was an agency of the Department of National Defence. As Canada's first peacetime military science establishment, the DRB's primary mandate was to provide scientific and technical assistance to the Canadian armed forces as well as policy advice to the minister of national defence.⁴⁴ The board was civilian staffed and directed, but a significant portion of its personnel had military experience from conducting operations research in the Second World War.⁴⁵ Operational researchers and defence scientists helped the military better understand the many characteristics of winter warfare by collecting raw data for further analysis through study of army physical training exercises.⁴⁶ Among the more active of the DRB's research facilities in the early Cold War period was its Defence Research Northern Laboratory at Fort Churchill, a location that had an initial construction budget of 1.5 million dollars in 1948-49.⁴⁷

Although northern military exercises aimed to determine the requirements and tactical techniques of supporting arms and services operating in cold climate conditions, a select number also supported Canada's wider military and defence research that aimed to understand the physical and psychological requirements of cold-weather soldiery.⁴⁸ The DRB conducted its Acclimatization Research Programme as part of this process at Fort Churchill during the winter of 1949-50. The research aimed to study the effect of vitamin C on the physiological adaptation to cold of personnel while in Canada's Arctic environment. Scientists administered two sets of pills to two groups of troops who conducted physically demanding military operations under severe cold as part of Exercise *Sun Dog One*.⁴⁹ The first group received placebo pills containing no vitamin C, while the second group received pills containing five hundred milligrams per day. Each test participant underwent a medical examination prior to and following the experiment. Scientists also conducted urinalyses, blood pressure measurements, and blood analyses twice weekly on troops throughout the duration of the programme, which lasted from January to March 1950. Each participant was administered pills prior to, during, and following exposure to cold and was granted one week extra leave following the completion of the test period. In their capacity as observers, DRB scientists received instructions to avoid doing anything that would interfere with the conduct of Exercise *Sun Dog One*. The evaluation of the capabilities and limitations of all participating arms and services was important to both the Canadian military and defence establishment in evolving tactical doctrine for northern warfare.⁵⁰

The DRB's acclimatization research associated with *Sun Dog One* was not the first attempt by scientists to deduce information about cold-weather operations from participants. Scientists had utilized volunteers as test subjects in similar trials a year prior to *Sun Dog One* in January and February 1949. Arrangements at the time were in place to use volunteer troops stationed in the North, but before tests commenced, the army decided to pull its participation. In order to meet the requirements of lead scientist Norman Mackworth, a meeting was then held of administrative and service heads when, "[a]fter much controversy over morale and other problems[,] ... it was realised that the absolute limit had been reached on the provision of test subjects."⁵¹ Tests went ahead nonetheless, and the scientists utilized persons already employed at Defence Research Northern Laboratory (DRNL) in Fort Churchill.

Funded jointly by Canada and the United Kingdom, the tests conducted at DRNL were the first in a series of two.⁵² Fort Churchill provided researchers the opportunity to conduct fieldwork in the Canadian North under "natural conditions of cold" and compare results to data recorded from physical observations of participants who had undergone similar examinations in a simulated cold-weather experiment at Cambridge, England. Although the army was tentative to cooperate, it seems troops already stationed at DRNL did eventually participate as volunteers.⁵³ Mackworth and his team conducted two experiments to test the hypothesis that cold exposure may bring about changes in skin texture that act as a "glove," thereby improving manual dexterity and performance in the cold by protecting the hands against the transmission and loss of heat. In the first test, researchers compared the sensitivity of a group of Aboriginal troops considered "well acclimatised" to that of "unacclimatised" white troops. In the second, researchers compared recorded skin sensitivity measurements taken before and after exposure to severe cold while on exercise to results of similar tests conducted in the Cambridge laboratory simulation. Results from both cases reported no significant differences between those considered already acclimatized and those not.⁵⁴

Thirty-five volunteers comprised the first test group, of which twenty were members of the Canadian army, nine were scientists, and the other six were "labourers." Mackworth and his team conducted finger numbness tests on volunteer participants using an experimental V-test apparatus. The V-test apparatus consisted of a flat wooden ruler cut in half. The two halves of the ruler were bolted together at one end, and at the other end they were separated by half an inch. The gap between the two inner edges of the device ranged between zero and thirteen

millimetres, according to the particular part that touched the tip of the tested finger. Instructed to look away as researchers administered the test, participants said whether they felt a gap when the examiner firmly pressed the two edges against the tip of the left forefinger. Researchers obtained ten such threshold readings from each participant prior to cold exposure and averaged the readings to establish an individual control.⁵⁵

To test participants in the cold, researchers constructed a canvas-lined tunnel equipped with a system of adjustable shutters designed to channel prevailing winds. Researchers administered tests only on "cold" or "very cold" days, when temperatures ranged from -25°C to -35°C and wind speeds in the tunnel ranged from zero to ten miles per hour.⁵⁶ Each test participant entered the wind tunnel and stood at such a position that their test hand was to the direction of the wind. A woolen glove fully covered the test hand, except for one finger, left entirely bare for an exposure time of three minutes. While exposed to the cold, researchers obtained ten threshold readings from each participant. The first reading was after one minute had passed and the others roughly at twelve-second intervals thereafter. Administrators of the test used these readings to devise a "numbness index" and compared the effect of cold and wind speed on manual dexterity.⁵⁷

Mackworth calculated his data based on results obtained during cold exposure at five- to ten-minute intervals. He used measurements from the two-point tactile discrimination V-test to assess the finger-numbing effects of severe cold and wind chill conditions. Researchers recorded 109 pairs in total, and Mackworth concluded that even moderate winds lowered skin temperatures and increased the risk of frostbite. He made this assessment partly in response to injuries that occurred during the tests. On 9 February 1949, three "test subjects" reported to the local station hospital complaining of pain in the left index finger. The hospital report dated two days later stated that all three men were "in a painful stage of defrosting" that "render[ed] their fingers useless for an average of seven days."⁵⁸ Prevented from carrying out their regular duties as a result of their physical injuries, these men were also reported to have suffered from a "morale problem."⁵⁹

Mackworth told a slightly different version of the story. In a published report of the experiments, he noted two rather than three injuries: "Two of the subjects later developed a minor frostbite in the finger that had been exposed and both were from the small group of four persons who experienced the worst environment of all—the highest wind speed of 8.1 to 10.0 mph and the very cold air temperature."⁶⁰ Under such extreme conditions, a change from normal sensitivity to "total anesthesia," or the

complete loss of feeling in the finger, occurred in under 2.5 minutes from the beginning of exposure. The sudden onset of numbness resulted in a “[p]rolonged lowering of skin temperature ... especially in subject D, who later developed a rather more severe lesion perhaps because of the nutritional impairment [that] lasted longer [possibly as a result of reduced blood flow].”⁶¹ Both frostbite “subjects developed definite surface reddening of the exposed finger” in under three minutes of return to the warm room, at which point “their fingers were still nearly freezing.”⁶²

Mackworth further described both frostbite victims with specific reference to each injury: “*Subject C* had a pale, white area about two inches long and one-quarter of an inch broad on the index finger on the side that had been nearest the wind source. This stretched from the proximal interphalangeal joint to the tip of the index finger where it broadened to about half-an-inch across.”⁶³ The injury was severe enough to restrict movement of the measured joint by forty-five degrees and caused “some pain and tenderness but no detectable swelling.” Yet by comparison, the other frostbite victim fared worse, according to Mackworth: “*Subject D* was more severely affected and had a definitely red and swollen forefinger ... [that] was markedly tender and painful, although it did not keep the subject awake at night.”⁶⁴ Fortunately, for both men, these injuries, what Mackworth referred to as “accidental” and “temporary” effects of research, did not prevent complete recovery. In both cases, the injured troops returned to work after being off for four days.

Although Mackworth concluded that only two out of all tested personnel succumbed to frostbite, another thirteen recorded single skin temperature readings lower than 5°C following exposure to severe cold. Of the thirteen, seven had skin temperature readings in the range between those recorded of “subjects C and D,” or 3.4°C and -2.3°C. At such low skin temperatures, the onset of pain felt by participants, especially those subjected to wind chill conditions, resulted in reports of “definite discomfort.” The provision of “test subjects” stopped immediately following the reported injuries, but on 24 February, DRNL and Mackworth submitted a further request for test subjects for use in “modified less-severe tests.”⁶⁵ In response to the request, the army agreed to provide volunteers for use in manual dexterity tests where, according to military records, “no temporary or permanent injury [would] result.”⁶⁶ Moving forward, the army agreed only to provide volunteers on the grounds that experimental trials did not interrupt military training.

Sun Dog One offered an opportunity to extend the acclimatization research conducted at DRNL. While scientific testing was limited to a select number of volunteers, all participating troops underwent a three-

week-long indoctrination course prior to the exercise at either Shilo, Manitoba, or Petawawa, Ontario, followed by an additional two weeks of Arctic acclimatization training at Fort Churchill.⁶⁷ Training involved manoeuvres in severe cold as well as the attempted development of a specific mental acuity derived specifically from the necessity to overcome the determinants of manual dexterity in northern military operations. To meet this goal, indoctrination training included lectures and exercises on snow craft, sea ice, bush living, and over-snow vehicles.⁶⁸ Troops learned how to erect tents, use sleeping bags, give first aid, use a cooker, ski and snowshoe, transport by sled and sleigh, navigate, and protect their hands in order to properly and effectively handle metal weapons and supplies in extreme cold.⁶⁹ Indoctrination also adopted cold-weather living and survival techniques known to Inuit. Troops learned to construct "snowhouses" similar to the igloo, tested clothing and dress techniques other than army standard, and practised Arctic navigational methods that utilized demarcation points in the natural environment around Fort Churchill.⁷⁰

Cold-Weather Performance and Military Masculinity

Based on the collective experience of Arctic acclimatization and indoctrination, the final report of *Sun Dog One* declared that ten weeks was the minimum period acceptable for northern cold-weather training up to the battalion level. A proposed schedule of training suggested three weeks indoctrination, two weeks trades training, three weeks cold-weather familiarization, and two weeks collective training. In order to be of proper value, the report further suggested that training only take place in conditions of climate and terrain comparable to those of the projected theatre. Otherwise, the success of the military operation "would be seriously prejudiced."⁷¹ The report concluded that properly trained and equipped troops could operate successfully and with a degree of high morale in climates of extreme cold for periods of up to thirty days under active conditions. The "ordinary" soldier conducting "normal" duties was comparable in efficiency in the North to the soldier operating in other, more temperate theatres. Yet the efficiency of the tradesman in tasks requiring manual dexterity was as little as 50 percent of "normal" under severe cold-weather and high-wind conditions.

Observers of *Sun Dog One* also noted that tactical mobility, both dismounted and mechanized, was a primary deficiency of the exercise. Three out of every five men were required to either haul or carry the group living equipment, which left only a maximum of 40 percent human strength to transport infantry support weapons, carry additional ammunition, and fulfill other necessary operational duties. Observers

considered this unacceptable and recommended in the exercise's final report that weight reductions in rations, fuel, tentage, and other operational equipment be implemented to produce the "lower standard of comfort" necessary to overcome the "dangers and hardships of the cold [that] have been brought into reasonable perspective" by *Sun Dog One*.⁷²

Manliness was a purview of the successful troop on *Sun Dog One*. Although as the conclusions of the Royal Canadian Infantry Corps conceded, "there is no requirement for special troops" to conduct cold-weather military operations, "special Arctic training" was determined necessary to acclimatize and indoctrinate "ordinary" soldiers. Under the conclusions and recommendations of personnel, the final report of *Sun Dog One* noted the necessity of indoctrination to "weed out any soldiers who are weak physically or who are NOT temperamentally suited to be part of a small group for a long period."⁷³ Indoctrination aimed specifically to remove the "undesirables" who "only cause a lowering of morale and do not pull their share of the weight."⁷⁴ This extended to persons with glasses or persons who had undergone skin grafting on the face, as both might be unable to operate to the required level of efficiency in certain cold-weather capacities.

Military discourse also equated performance in the cold to attitudes about virile masculinity. In exceptional circumstances, frostbite necessitating medical attention was a matter of disciplinary action. In other words, planners of *Sun Dog One* recommended that troops receive penalty for personal injury that resulted from "negligible" exposure to severe cold.⁷⁵ If frostbite were to occur, troops were to assume personal responsibility for their injuries and report for subsequent punishment. Despite this recommendation, there seems to be no record of disciplinary action ever having resulted from a frostbite injury. Nevertheless, the forethought does highlight the gauche understanding of virile notions toward the development of cold-weather soldiery. The military ultimately concluded that "troops need not be hand-picked" for Arctic service, but "some weeding out during the training period must be permitted to eliminate temperamentally or physically unsuitable men who would otherwise become liabilities during [the] operation."⁷⁶ Evocative of this very process, acclimatization and indoctrination were symptomatic of broader Cold War desires to understand and overcome physical and climatic constraints, where science, as Matthew Farish points out, was used in an attempt to create the "masculine Cold Warrior" capable of recognizing and regulating as far as possible "a set of hostile natural environments."⁷⁷

In creating space for Canada's cold-weather soldier to assume the conceptualized role of the Cold War national protector, acclimatization research and indoctrination training perpetuated and legitimized postwar modernist ideals of masculinity. Research and training aimed to equip troops with the proper levels of pugnacity, truculence, and testosterone required to remain effectively "aggressive" under conditions of extreme cold. Contemporary attitudes suggested that great physical and mental strength derived from such qualities, and so the maintenance of a high level of morale depended on virile notions of soldiery. According to DRB scientist and Arctic military exercise observer Cecil Law, well-trained and indoctrinated troops "could run circles around the mobile strike force" and were essentially no match in the cold against untrained and unacclimatized units.⁷⁸ Military and defence records pertaining to *Sun Dog One* paint a similar picture. Reports suggest that Arctic acclimatization and indoctrination was effective training for cold-weather military operations. Canadian troops never fought in an operation that would test their abilities in the cold, so the effectiveness of northern training remains questionable. What is clear is that there is no evidence to suggest that training instilled in troops certain innate qualities required of northern military defence. The development of cold-weather military masculinity was superficial.

Conclusion

This article means not to suggest that *Sun Dog One* is fully representative of Canada's early postwar Arctic military training. Nor does it suggest that *Sun Dog One* represents the full extent of scientific collaboration between the DRB and the military. Indeed, the Canadian military participated in no fewer than twenty-two northern exercises in the first decade of the Cold War.⁷⁹ Scientists featured regularly as observers, referees, and participants. Nevertheless, *Sun Dog One* was unique. When Omond Solandt made his address to the Empire Club of Toronto on 30 March 1950, he spoke briefly about *Sun Dog One* and of the importance of collaboration between Canada, the United States, and Britain in defence of the Arctic. In his mind, Exercises *Sweetbriar* and *Sun Dog One* had collectively demonstrated that two or more sovereign nations could effectively carry out joint military exercises in severe cold conditions. Solandt's speech was a clear and public Cold War message that the Canadian military and defence establishment was fully committed to Arctic defence and was not alone in its stand. Yet when discussing the importance of northern military operations to the Canadian public, Solandt and other military and defence representatives chose to highlight only the benefits of indoctrination training and joint operational

execution. It seems the specifics of vitamin C research and acclimatization testing went unknown to the public, but evidence has survived through military and defence records as well as published medical reports.

Available evidence makes clear that in the immediate postwar period, the Canadian army sought a deeper understanding of the many characteristics of winter warfare and in its search embraced experimental scientific study in an attempt to deduce information unique to the development of cold-weather soldiery. Northern environmental conditions required special investigation because the Canadian Arctic and sub-Arctic climate deviated significantly from the conditions under which most of the army's concepts, doctrine, and tactics were developed.⁸⁰ Operational researchers and defence scientists contributed at the time by collecting raw data for further analysis through participatory study of the army's physical training exercises. Men were the chosen test subjects.

Although not surprising considering what little reference they receive in the lexicon of Canada's military history, terms such as acclimatization and indoctrination find little reference with the Canadian military establishment. This should be of particular concern to scholars of Canada's military in the Cold War, because together, acclimatization and indoctrination comprised the base upon which a unique form of military preparedness developed in northern Canada in the early postwar years. Canada's postwar military doctrine derived from societal factors and the nature of the Cold War within which science, defence, and diplomacy occurred. As evident by cold-weather research and training conducted at Fort Churchill and as part of *Sun Dog One*, defence science, in addition to geopolitics, shaped Canada's Cold War national security apparatus.

Cold-weather testing on male troops supported and perpetuated idealized notions of virile soldiery. Involving researchers and scientists in important military investigations on northern warfare developed, in theory, a model for future combat development work. From proper scientific analyses in climatic conditions, the Canadian military and defence establishment hoped to derive information to improve operational concepts, doctrine, and tactical principles pertinent to cold-weather warfare.⁸¹ Sufficient knowledge and adequately satisfactory research material was deemed to have been obtained because of *Sun Dog One* and other comparable cold-weather exercises. The negative consequences that resulted from acclimatization research appear only briefly in available records. Researchers desired the potential benefits of cold-weather scientific discovery in spite of any moral or ethical issues that stemmed from human testing. While additional research is required to elucidate the deep implications of postwar defence science in Canada,

it seems safe to suggest that the human and environmental legacy of Cold War militarism deserves attention.

Notes

This research received financial support from the Department of History at Wilfrid Laurier University, the Laurier Centre for Military Strategic and Disarmament Studies, and the Social Sciences and Humanities Research Council of Canada. The author wishes to thank his doctoral supervisor Kevin Spooner, Mark Humphries, Terry Copp, and the anonymous reviewers of *Canadian Military History*, who all provided insightful feedback and guidance that significantly improved the final article.

¹ As quoted in the final report of *Sun Dog One*, prepared under the direction of the Chief of General Staff and published by the Directorate of Military Training; see Winter Exercise "Sun Dog One," RG 24, Volume 4206, File 270-0-89-6, Library and Archives Canada (LAC), 12.

² The Canadian military participated in no fewer than twenty-two northern operations in the first decade of the Cold War, including Exercises *Eskimo*, *Polar Bear*, and *Lemming* (1945); *Musk Ox* (1946); *Moccasin* (1947-48); *Sigloo* (1948-49); *Cross Country*, *Sweetbriar*, *Sun Dog One*, and *Shoo Fly One* (1950); *Sun Dog Two*, *Shoo Fly Two*, *Measureall*, and *Pole Star One, Two, and Three* (1951-52); *Sun Dog Three*, *Deer Fly One, Two, and Three*, and *Prairie Tundra One* (1952); *Prairie Tundra Two* (1952-53); and *Bull Dog* (1953); see C.E. Law, J.A. Easterbrook, and M.F. Coffey, Defence Research Board Northern Laboratory: Progress Report on an Assessment of Current Equipment and Methods used by Army Personnel for Ground Navigation in the North, 30 June 1954, RG 85, Volume 299, File 1009-2[5], LAC. For an abbreviated list of Canadian army exercises in the North between 1945 and 1953, including dates, locations, and aims, see Andrew B. Godefroy, *In Peace Prepared: Innovation and Adaptation in Canada's Cold War Army* (Vancouver: UBC Press, 2014), 87-88.

³ See Reg Whitaker and Gary Marcuse, *Cold War Canada: The Making of a National Insecurity State, 1945-1957* (Toronto: University of Toronto Press, 1994), 141-42 and Robert Teigrob, *Warming up to the Cold War: Canada and the United States' Coalition of the Willing, from Hiroshima to Korea* (Toronto: University of Toronto Press, 2009), 64-65.

⁴ See, for example, by date of publication, Joseph T. Jockel, *No Boundaries Upstairs: Canada, the United States, and the Origins of North American Air Defence, 1945-1958* (Vancouver: UBC Press, 1987); Robert Bothwell, *The Big Chill: Canada and the Cold War* (Toronto: Canadian Institute of International Affairs, 1998); and Sean M. Maloney, *Learning to Love the Bomb: Canada's Nuclear Weapons During the Cold War* (Washington: Potomac, 2007).

⁵ Two significant contributions to the field of Canada's Cold War defence-related science include Andrew B. Godefroy, *Defence and Discovery: Canada's Military Space Program, 1945-74* (Vancouver: UBC Press, 2011) and Donald Avery, *Pathogens for War: Biological Weapons, Canadian Life Scientists, and North American Biodefence* (Toronto: University of Toronto Press, 2013).

⁶ P. Whitney Lackenbauer and Matthew Farish, "The Cold War on Canadian Soil: Militarizing a Northern Environment," *Environmental History* 12, no. 4 Special Issue on Canada (2007), 920-50.

⁷ Some other foundational works on Cold War Canada include, by date of publication, Whitaker and Marcuse, *Cold War Canada* (1994); Greg Donaghy, ed., *Canada and the Early Cold War, 1943–1957* (Ottawa: Department of Foreign Affairs and International Trade, 1998); Andrew Burtch, *Give Me Shelter: The Failure of Canada's Cold War Civil Defence* (Vancouver: UBC Press, 2012); Tarah Brookfield, *Cold War Comforts: Canadian Women, Child Safety, and Global Insecurity, 1945–1975* (Waterloo: Wilfrid Laurier University Press, 2012); Isabel Campbell, *Unlikely Diplomats: The Canadian Brigade in Germany, 1951–64* (Vancouver: UBC Press, 2013); and Godefroy, *In Peace Prepared* (2014).

⁸ Peter Kasurak, *A National Force: The Evolution of Canada's Army, 1950–2000* (Vancouver: UBC Press, 2013), 11.

⁹ For a detailed timeline of North American air defence cooperation between Canada and the United States with regard to radar, see Daniel Heidt and P. Whitney Lackenbauer, "Sovereignty for Hire: Civilian Airlift Contractors and the Distant Early Warning (DEW) Line, 1954–1961," in P. Whitney Lackenbauer, *De-icing required!: the historical dimension of the Canadian Air Force's experience in the Arctic* (Ottawa: National Defence and the Canadian Forces, 2012), 95–112.

¹⁰ Matthew Farish, *The Contours of America's Cold War* (Minneapolis: University of Minnesota, 2010), 174.

¹¹ Ronald E. Doel, "Constituting the Postwar Earth Sciences: The Military's Influence on the Environmental Sciences in the USA after 1945," *Social Studies of Science* 33, no. 5 (2003), 635–66.

¹² Farish, *The Contours of America's Cold War*, 176.

¹³ Rob Huebert, "Walking and Talking Independence in the Canadian North," in *An Independent Foreign Policy for Canada? Challenges and Choices for the Future*, Brian Bow and Patrick Lennox, eds. (Toronto: University of Toronto Press, 2008), 119.

¹⁴ Shelagh Grant has suggested that Canada sacrificed its sovereignty in Arctic defence negotiations with the United States; see *Sovereignty or Security: Government Policy in the Canadian North, 1936–1950* (Vancouver: UBC Press, 1988). Others have emphasized sound decision-making, open dialogue, and respect on both sides. See P. Whitney Lackenbauer and Peter Kikkert, "Sovereignty and Security: Canadian Diplomacy, the United States, and the Arctic, 1943–1968," in *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade*, Greg Donaghy and Michael K. Carroll, eds. (Calgary: University of Calgary Press, 2011), 101–20.

¹⁵ Kasurak, *A National Force*, 16.

¹⁶ For information on the MSF, see Sean M. Maloney, "The Mobile Striking Force and Continental Defence 1948–1955," *Canadian Military Journal* 2, no. 2 (1993), 75–88; Bernd Horn, *Bastard Sons: An Examination of Canada's Airborne Experience 1941–1995* (St. Catharines: Vanwell Publishing Limited, 2001); and Raymond Stouffer, "Military Culture and the Mobile Striking Force," in P. Whitney Lackenbauer, *De-icing required!*, 58–70.

¹⁷ See, for example, Colonel Bernd Horn, ed., *The Canadian War of War: Serving the National Interest* (Toronto: Dundurn, 2006) and Kasurak, *A National Force*.

¹⁸ For an assessment of the impact that federal finance reallocation had on the postwar Canadian military, see Godefroy, *In Peace Prepared*.

¹⁹ Kasurak, *A National Force*, 11.

²⁰ Howard G. Coombs and Richard Goette, "Supporting the Pax Americana: Canada's Military and the Cold War," in Colonel Bernd Horn, *The Canadian War of War*, 265–96.

²¹ Hugh L. Keenleyside, *Memoirs of Hugh L. Keenleyside, Volume 2: On the Bridge of Time* (Toronto: McClelland and Stewart, 1982), 308.

²² *Ibid.*

²³ *Ibid.*, 310.

²⁴ Godefroy, *In Peace Prepared*, 49.

²⁵ While Canadian literature outside of Lackenbauer and Farish (see note 6) has yet to broach this topic, similar themes have been addressed in the American context. See, for instance, Matthew Farish, "The Lab and the Land: Overcoming the Arctic in Cold War Alaska," *Isis* 104, no. 1 (2013), 1-29.

²⁶ For a brief overview of Canada's Winter Warfare Programme of 1944-45, see Hugh A. Halliday, "Recapturing the North: Exercises "Eskimo," "Polar Bear" and "Lemming," 1945," *Canadian Military History* 6, no. 2 (1997), 29-38.

²⁷ Godefroy, *In Peace Prepared*, 85.

²⁸ Halliday, "Recapturing the North," 29-38.

²⁹ Dr. O.M. Solandt, Exercise "Sweetbriar": An Address to The Empire Club of Toronto, 30 March 1950, RG 24, Volume 2484, File HQS-736-10-17-2-5, LAC.

³⁰ James Reston, "Unified Arctic Defense Plan Proposed by U.S. to Canada: Joint Bases, Weather Stations in Far North, Coordinated Training and Equipping of Forces in Scheme Put to Ottawa," *New York Times*, 18 May 1946, 1.

³¹ Defence Research Board Arctic Research Advisory Committee, 5 December 1949, Appendix A "Summary of Activities of the Arctic Research Advisory Committee," RG 85, Volume 298, File 1009-2[2], LAC.

³² Government of Canada, House of Commons Debates, 21st Parliament, 2nd Session: Vol. 1, 17 March 1950, 853-54.

³³ *Ibid.*

³⁴ Dr. O.M. Solandt, Exercise "Sweetbriar": An Address to The Empire Club of Toronto, 30 March 1950, RG 24, Volume 2484, File HQS-736-10-17-2-5, LAC.

³⁵ Government of Canada, House of Commons Debates, 21st Parliament, 2nd Session: Vol. 4, 9 June 1950, 3408.

³⁶ Extract from U.S. Army Field Forces Newsletter, 1 May 1950, RG 24, Volume 2484, File HQS-736-10-17-2-5, LAC.

³⁷ Winter Exercise "Sun Dog One," RG 24, Volume 4206, File 270-0-89-6, LAC.

³⁸ Training Wing Fort Churchill: Exercise Sun Dog 1, RG 24, Volume 2484, File HQS-726-40-39-7, LAC.

³⁹ For a detailed description of *Sun Dog One*, including photographs of the exercise, see Brief on Exercise "Sun Dog One," 25 February 1950, RG 24, Volume 2484, File HQS-726-40-39-7, LAC.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

⁴² Government of Canada, House of Commons Debates, 21st Parliament, 2nd Session: Vol. 1, 17 March 1950, 854.

⁴³ Army Headquarters, 3 January 1950, RG 24, Volume 2484, File HQS-726-40-39-7, LAC.

⁴⁴ For an institutional history covering the early formative years of the DRB, see Captain D.J. Goodspeed, *DRB: A History of the Defence Research Board of Canada* (Ottawa: Queen's Printer, 1958).

⁴⁵ Operational research (OR) involved scientific investigations carried out in the field of operations and became widely recognized during the Second World War, when careful observations, analyses, and conclusions were first applied profitably to

wartime operations. For information on Canada's wartime OR in the Second World War, see Terry Copp, *Montgomery's Scientists: Operational Research in Northwest Europe* (Waterloo: Laurier Centre for Military, Strategic and Disarmament Studies, 2000). Postwar OR concentrated primarily on combinations that involved weapons, communications, transports, and other systems that employed electronic and mechanical components; see 44327—The Defence Research Board of Canada, JGD/MG01 (John G. Diefenbaker fonds), Volume 76, File VII/A/614, University Archives and Special Collections, University of Saskatchewan. The Operational Research Group of the DRB was specifically responsible for projects of joint-service or general defence interest and for the supply and coordination of civilian scientific personnel. See Defence Research Board: Debate of the Annual Estimates in the House of Commons 1952, RG 24, Volume 4210, File 69-180-262, LAC.

⁴⁶ Godefroy, *In Peace Prepared*, 85.

⁴⁷ Programme of Works for 1948–49 Joint Testing Station Fort Churchill, Manitoba, RG 24, Volume 4150, File 52-751-268-1 vol. 2, LAC.

⁴⁸ Winter Exercise "Sun Dog One," RG 24, Volume 4206, File 270-0-89-6, LAC.

⁴⁹ The exact number of test participants remains unclear, but the DRB initially requested the volunteer participation of thirty soldiers. See Defence Research Northern Laboratory: Acclimatization Research Programme 194-50 Fort Churchill, RG 24, Volume 2484, File HQS-726-40-39-7, LAC.

⁵⁰ General Instruction for Observers Participating in Exercise "Sun Dog One," RG 24, Volume 2484, File HQS-726-40-39-7, LAC.

⁵¹ Provision of Test Subjects for Defence Research Board, RG 24, Volume 2484, File HQS-726-40-17-11, LAC.

⁵² The acclimatization research conducted by Norman Mackworth and his team was jointly financed by the DRB of Canada, as well as the Medical Research Council and the Medical Department of the Royal Navy. For a published account of the experiments, see N.H. Mackworth, "Finger Numbness in Very Cold Winds," *Journal of Applied Physiology* 5 (1953), 533-43 and N.H. Mackworth, "Cold Acclimatization and Finger Numbness," *Proceedings of the Royal Society of London, Series B, Biological Sciences* 143, no. 912 (1955), 392-407.

⁵³ Available records are slightly ambiguous on this point. Military documents suggest troops from Exercise *Prairie Tundra Two* (1952) were utilized as test subjects, whereas Mackworth's published report in the *Journal of Applied Physiology* dates the experiments to January and February 1949. The dates provided by Mackworth coincide with the operational dates of *Sigloo*, seemingly making it the exercise during which troops also volunteered to participate in acclimatization research. It is also plausible that troops volunteered to take part in DRNL research while not as part of a formal military exercise.

⁵⁴ The "test subject" indicated when he first felt the two edges of the apparatus as one; the width of the gap was the discrimination score charted on the "numbness index." For information on the administration of the V-test at Fort Churchill, see M.F. Coffey, "Results of a Test for Changes in Skin Sensitive [*sic*] after a Period of Acclimatization to the Cold," DRNL Technical Paper No. 16, November 1953, RG 85, Volume 299, File 1009-2[5], LAC.

⁵⁵ For a photograph of the V-test apparatus, see Mackworth, "Finger Numbness in Very Cold Winds," 533-43.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*, 535.

⁵⁸ Provision of Test Subjects for Defence Research Board, RG 24, Volume 2484, File HQS-726-40-17-11, LAC.

⁵⁹ *Ibid.*

⁶⁰ Mackworth, "Finger Numbness in Very Cold Winds," 538.

⁶¹ *Ibid.*, 539.

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ *Ibid.*, 540.

⁶⁵ Provision of Test Subjects for Defence Research Board, RG 24, Volume 2484, File HQS-726-40-17-11, LAC.

⁶⁶ *Ibid.*

⁶⁷ Wainwright, Alberta, was also used as a location for indoctrination training but not in preparation for *Sun Dog One* – the Princess Patricia's Canadian Light Infantry were indoctrinated there in training for *Sweetbriar*; see George Bain, "Canadians Show Up Favorably," *The Globe and Mail*, 6 March 1950, 17.

⁶⁸ "Arctic Training Cuts Casualties," *The Globe and Mail*, 21 February 1948, 3.

⁶⁹ "Will Teach War This Winter At Four Canadian Schools," *The Globe and Mail*, 29 November 1948, 17.

⁷⁰ The term igloo derives from the Inuit word *iglu* (plural *igluit*), which can refer to a structure built of any material and is not restricted exclusively to snowhouses. For details on "snowhouse" construction at Fort Churchill as part of indoctrination training, see Winter Exercise "Sun Dog One," RG 24, Volume 4206, File 270-0-89-6, LAC.

⁷¹ *Ibid.*

⁷² *Ibid.*

⁷³ *Ibid.*

⁷⁴ *Ibid.*

⁷⁵ Disciplinary action was "taken against personnel in camp suffering from frostbite when there [was] evidence of negligence." See Provision of Test Subjects for Defence Research Board, RG 24, Volume 2484, File HQS-726-40-17-11, LAC.

⁷⁶ Winter Exercise "Sun Dog One," RG 24, Volume 4206, File 270-0-89-6, LAC.

⁷⁷ Matthew Farish, "Creating Cold War Climates: The Laboratories of American Globalism," in *Environmental Histories of the Cold War*, J.R. McNeill and Corinna R. Unger, eds. (Cambridge: Cambridge University Press, 2010), 51-83.

⁷⁸ Interview with Cecil Ernest Law [sound recordings]: CWM Oral History Project, 6 August 2008, Interview Control Number 31D 9 LAW, Canadian War Museum Archives.

⁷⁹ See note 2.

⁸⁰ Godefroy, *In Peace Prepared*, 87.

⁸¹ *Ibid.*, 89.

5

The Roundel and Building RCAF Arctic “Air Mindedness” During the Early Cold War

Richard Goette*

The Royal Canadian Air Force (RCAF) was heavily involved in flying in Canada’s Arctic during the early Cold War. With significant time and resources dedicated to military aviation in Canada’s North, it was important for the RCAF leadership to raise the profile and awareness of the Canadian Arctic – generating RCAF Arctic “air mindedness.” This goal was accomplished through articles and features in the service’s main publication, *The Roundel*, that dealt with Arctic and northern aviation-related issues of interest to Canadian airmen. Besides dealing with specific Arctic flying operations, Arctic “air minded” articles in *The Roundel* during the early Cold War also touched upon other vital issues, such as the ever-important concern of manning RCAF bases in the North and the living and working conditions at these establishments.

Moreover, the new enemy in the Cold War was the Soviet Union, and the quickest way it could strike at North America’s war-making capacity and population centres was for its growing fleet of long-range strategic bombers armed with atomic weapons to attack via the northern approaches to the continent. Canada’s North was, indeed, a potential “Arctic Front” in a war with the Soviet Union.¹ Therefore, the strategic reasoning for Canada’s requirement to deploy forces to the Arctic was also

* Originally published as the introduction to *Northern Skytrails: Perspectives on the Royal Canadian Air Force in the Arctic from the Pages of The Roundel, 1949-65*, eds. Richard Goette and P. Whitney Lackenbauer, Documents on Canadian Arctic Sovereignty and Security (DCASS) No. 10 (Calgary and Waterloo: Centre for Military, Security and Strategic Studies, Arctic Institute of North America, and Centre on Foreign Policy and Federalism, 2017), xviii-xl.

an important facet of developing Arctic “air mindedness” – especially amongst those RCAF personnel who were already stationed or may soon be stationed in Canada’s North.

Indeed, after the Second World War, the Canadian military in general (and the RCAF in particular) was required to reorient its “geographical” strategic thinking from the traditional east-west threats to also include the growing Soviet threat from the north.² Typically, the RCAF had focused on military threats from Europe and Asia, and it had mostly only concerned itself with Canada’s North in terms of non-kinetic domestic operations such as aerial mapping and other “aid to the civil power” roles.³ With the growing Soviet strategic bomber threat in the early Cold War period, however, the RCAF began to pay much more attention to its “kinetic” role of defending the continent’s approaches from the north.⁴ This article argues that with this reorientation of the “geographical” strategic thinking towards the North in the early Cold War period, Canada’s air force leadership actively sought to generate Arctic “air mindedness” in the pages of *The Roundel* to raise awareness within the RCAF of the need to operate and work in the Canadian Arctic.

In *High Flight*, historian Jonathan Vance discusses the *idea* of aviation – what he calls “air mindedness” – in the minds of Canadians. This phenomenon included the efforts by the “air lobby” – Canadians involved in flying – to raise awareness of aviation and its various uses to those who did not have a personal connection to aviation. According to Vance, these uses of aviation included but were not limited to entertainment (i.e., barn storming and stunt flying), transportation (of people and cargo), civil service (such as mapping and forestry patrol), and the use of aviation in war (air power).⁵ Focusing on the latter three uses of aviation, this article contends that the “air mindedness” methodology can be applied by identifying the senior leadership of the RCAF as the “air lobby” that desired to raise awareness of the air force’s presence and operations in Canada’s Arctic amongst air force personnel.

The medium that Canada’s air force brass utilized to generate Arctic “air mindedness” was the RCAF’s service magazine, *The Roundel*. It was first introduced in November 1948, right on the heels of the Berlin Airlift Crisis and the subsequent “heating up” of the Cold War. *The Roundel* was published ten times a year and was widely distributed within the RCAF. Moreover, it was produced in large quantities so that all Canadian air force personnel were expected to read it. The purpose of *The Roundel* was to avoid a narrow-minded specialist perspective amongst airmen in terms of their own trade or role in the service. Seeking a broader readership, the RCAF service magazine therefore had a more holistic approach, covering

a variety of issues in short, readable articles that would appeal to individuals of every rank, community, and trade in Canada's air force. In the words of Chief of the Air Staff (CAS) Air Marshal Wilfred Curtis in the inaugural issue, the air force brass hoped to encourage "extensive reading and discussion" of issues related to the RCAF in order to foster "a wider perspective which gives full meaning to its individual tasks."⁶ Material covered in the publication therefore varied from historical articles to pieces on current air power issues, but also photographs, cartoons, and other illustrations, as well as short tidbits of current news relating to the air force. Importantly, *The Roundel* also included the use of humour, in written form and also in Ray Tracy's excellent cartoons, as a means to entice readership. As a result, as Canadian aviation historian Larry Milberry has noted, during the early Cold War *The Roundel* became "to most serving members [of the RCAF] as much a part of the Air Force as flight sergeants or Harvards."⁷

All of these measures to entice readership of *The Roundel* – especially humour – proved to be an effective means to generate Arctic "air mindedness" within the RCAF. A cursory examination of issues from the late 1940s and 1950s reveals a bevy of articles that dealt with the Arctic and Canada's northern regions. Although these articles at first seemed to appear in the RCAF's service magazine haphazardly, there was a concerted effort by the RCAF leadership to ensure that Canadian air force personnel began to think more about the Arctic. Accordingly, this article analyzes features in *The Roundel* that focused on northern and Arctic-related matters, with particular attention to developing Arctic "air mindedness" as it relates to pre-1945 Canadian air force history in the North, Arctic strategy, northern aerial operations, and the living and working conditions for RCAF personnel at these establishments during the early Cold War.

Promoting Awareness of Canada's Air Force History in the North

If there was any question that the RCAF leadership was trying to encourage awareness of the North in the pages of *The Roundel*, the cover of the inaugural November 1948 issue of the RCAF's service magazine certainly put that notion to rest. Instead of showing a picture of a massive bomber or a high-powered fighter aircraft, the cover depicted a dogsled plying through the snow, with a ski-equipped RCAF aircraft flying overhead. This was quintessential imagery of Canada's northern flying.⁸

Included in this inaugural issue of *The Roundel* was an article by Flight Lieutenant (F/L) E.P. Wood entitled "Northern Skytrails: The story of the

work of the R.C.A.F. in Canada's Arctic and Sub-arctic."⁹ This piece was the first in a series of articles under the "Northern Skytrails" banner describing the early history of the RCAF and especially its experiences in northern flying. The purpose of the series, the author explained, was "to give the reader a clear and factual conception of what is perhaps the more romantic, but also less publicized, aspect of the R.C.A.F.'s activities."¹⁰ In other words, the motive behind the "Northern Skytrails" series was to promote Arctic "air mindedness" amongst RCAF personnel. Importantly, the rationale for this series came right from the top of the RCAF leadership; as F/L Wood explained, "the task of [the series'] publication was assigned by the Chief of the Air Staff to the Directorate of Intelligence (Air)."¹¹

The first article in the "Northern Skytrails" series began with a brief early history of the RCAF, touching on such information as the Air Board, the Canadian Air Force, inter-war training, the formation of the RCAF itself in April 1924, Civil Government Air Operations, and the "militarization" of the air force before the outbreak of the Second World War. The purpose was to teach those who were not familiar with the RCAF's history up to that time and refresh the memory of those who were. The author's actual words delivered this message clearly and used clever humour to grab the reader's attention: "it is thought, however, that before proceeding with the main theme, namely the breaking of our northern skytrails, the reader should be fully acquainted with the background of the Service which has done, and is still doing, so much to break them."¹² It was significant that the *first* historically based article in *The Roundel* – one that outlined the history of the RCAF to date – was written in a northern Canadian context.

This theme continued through the concluding article of the "Northern Skytrails" series. F/L Wood describes the RCAF's endeavours in the North in the years since the end of the Second World War, including continuous photographic survey flights, search-and-rescue (SAR) work, supply flights by Air Transport Command (ATC), as well as Operations *Musk Ox* and *Investigator*. In concluding the series, Wood notes that the RCAF's "efforts are turned northward again" and that the "Polar Concept was just as real ... in 1922 as it is in our minds to-day." He emphasizes that Canada needed to develop and protect its Arctic areas. Concurrently, he notes the importance of engaging with the Americans in guarding Canada's North: "the job is so gigantic that in some instances the United States' aid has been sought and received, but it is the policy of the Canadian government to replace American with Canadian personnel, when the latter are available."¹³ Inherent in the effort of the RCAF to promote Arctic "air mindedness" amongst RCAF personnel during the early Cold War period

was the important – and thorny – issue of collaborating with the United States on defence measures in the Arctic.¹⁴

Arctic Strategy

Besides pieces on the history of RCAF flying in the North, *The Roundel* also included articles that specifically dealt with the Arctic itself in order to foster interest in the region. Indeed, *The Roundel* was a medium to explain the strategic reasoning for Canada's requirement to deploy forces to the Arctic to those RCAF personnel who were already stationed or may soon be stationed in Canada's North. In choosing these articles, the editor of the RCAF service magazine included pieces by air force personnel on the staff of *The Roundel*, Air Force Headquarters, and the various RCAF commands and units.¹⁵ He also spread his net widely and republished articles dealing with Arctic themes from other publications.

For example, the April 1950 issue of *The Roundel* featured an article entitled "The Strategy of the Arctic," republished "in considerably shortened form" from the October 1949 issue of *International Affairs*, the journal of the Royal Institute of International Affairs in England.¹⁶ The piece was written by Group Captain (G/C) V.H. Patriarche, an RCAF officer with extensive civil and military service flying in Canada's North and one of the senior RCAF staff members of the Northwest Staging Route during the Second World War. In the article, G/C Patriarche begins by noting that "the strategy of the Arctic must deal with political and economic problems as well as purely military ones." He specifically outlined the sovereignty issue in relation to the Canadian Arctic with other nations; in particular, he mentioned that other countries' arguments have little weight in comparison to Canada's claims. However, his main emphasis was on the problem (and high cost) of transportation – especially sea-borne and land-borne – and how the air force therefore plays a crucial role in bringing supplies to the Arctic.

In terms of strictly military matters, G/C Patriarche notes that the Arctic "can be considered in two aspects: first, as a theatre of operations; and second, as a route of attack." He plays down the former, largely due to the huge logistical difficulties, and puts more emphasis on the latter. However, he notes that there was a "lack of decisive targets" in the Arctic and that the focus of operating in this theatre would be on interdicting potential enemy aircraft flying the Arctic air route with the objective of attacking vital targets further south. This strategic assessment of the Arctic would later support the air defence concept of "defence in depth": that it was necessary to intercept and engage the enemy as far away from his target as possible.¹⁷

Lastly, G/C Patriarche downplays the importance of the Arctic as a theatre of operations – probably to not provoke the Soviet Union. Nonetheless, he hints at the possibility of the Soviet threat to North America in his closing paragraph:

We may take it, then, that the Arctic, *unless it becomes the only or the shortest route between the vital areas of two contending Powers*, is not likely to become the major theatre of military operations for some time to come. It fills, rather, a subsidiary role, although, depending on the circumstances of war, it could become a decidedly active area.¹⁸

Geostrategic concerns related to Canada’s Arctic were therefore a frequent theme in issues of *The Roundel* during the Cold War. However, air defence was not the only strategic issue examined in its pages.

The April 1951 issue of *The Roundel* reprinted an article from Britain’s “Everybody” Magazine written by retired Marshal of the Royal Air Force (MRAF) Viscount Hugh Trenchard. Addressing the Cold War context, this British air power legend warned of the traditional east-west strategic geographic thinking based on the Mercator Projection map (which showed the world on a flat surface). Trenchard stressed that, in the age of global reach provided by strategic air power, traditional perceptions amounted to a “Maginot Line Mentality.” He cautioned “civilized powers” about ignoring threats from other – notably northern – orientations (see figure 5-1).¹⁹

Alternatively, Trenchard stresses a more global strategic way of thinking. Instead of emphasizing air defence, it was no surprise that Britain’s most famous strategic bombing theorist advocated for offensive

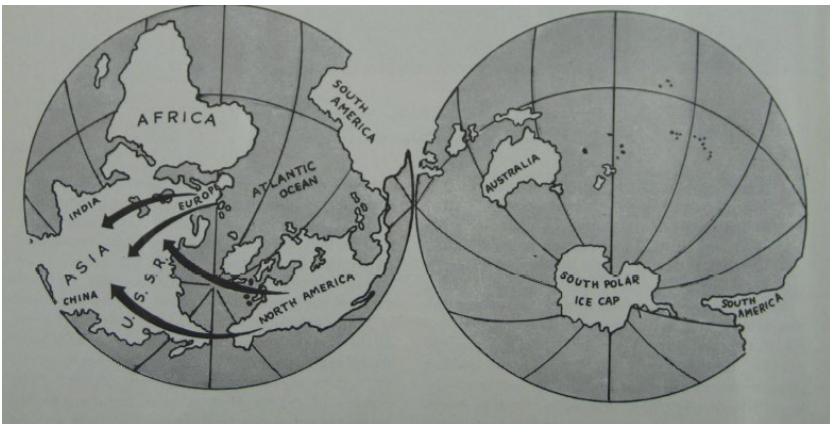


Figure 5-1: MRAF Trenchard’s Air Power perspective map.²⁰

use of the Arctic approaches by Western countries through a massive and quick build-up of their bomber forces. These strategic assets could then be utilized to either strike the Soviet Union in a time of war or at least deter this Cold War adversary from launching its own atomic attack.²¹ Trenchard's overall theme was that of air power and geography, and he concludes with the following statement: "it is the greater range of aircraft and not the atom bomb that has changed warfare."²² Therefore, even though Trenchard did not emphasize strategic air defence (which during the 1950s would be the main role of the RCAF) when highlighting the importance of the northern approaches, he fostered greater awareness of the Arctic amongst Canadian airmen.

Nonetheless, the RCAF's air defence mission was not ignored in *The Roundel* during the late 1940s and 1950s. Various articles specifically focused on the important role of the RCAF to protect the North American continent from Soviet strategic bomber attack. These included features on a variety of air defence issues and roles such as the Ground Observer Corps (which consisted of civilian observers tasked to keep an eye on the sky for enemy aircraft), the job of Aircraft Control and Warning in the air force (many positions of which were filled by women in the RCAF), the Canada-U.S. North American Air Defence Command (NORAD), and RCAF stations and the Mid-Canada and Distant Early Warning (DEW) radar lines in the Far North.²³ Particular attention also was given to updates on the development of RCAF all-weather interceptors that would operate in northern Canada in an air defence role, such as the CF-100 *Canuck* and the CF-105 Avro *Arrow*.²⁴

In 1950, *The Roundel* also covered the RCAF's role in Exercise *Sweetbriar*, a Canada-U.S. joint and combined continental defence exercise to test operational capabilities in the Canadian Arctic and Alaska. Army forces were under the command of Chief of the General Staff Lieutenant-General Charles Foulkes, while air force units came under the CAS, Air Marshal Curtis. *Sweetbriar*, however, did not solely focus on air defence: it was a truly joint operation to evaluate interoperability for tactical air support and tactical and strategic airlift capabilities in conjunction with army forces. Therefore, in addition to the RCAF's *Vampire* and *Mustang* fighters and the USAF's F-80 *Shooting Star* interceptors, other aircraft, including Canadian B-24 *Liberators*, Avro *Lancasters*, DC-4 *North Stars*, and DC-3 *Dakotas*, and American P-82 *Twin Mustangs*, A-26 *Invaders*, and C-54 *Skymasters*, were involved in *Sweetbriar*.²⁵ However, instead of publishing an analysis of the exercise (likely, it is suspected, to avoid such accounts coming under Soviet eyes), *The Roundel* ran excerpts from the diary of RCAF Sergeant D.J. Blain, who worked at the Canadian Joint Air Training

Centre in Rivers, Manitoba, and was assigned to assist the official umpires for the combined exercise.²⁶ According to the editor, the purpose of publishing this account from a non-commissioned officer's journal was for readers to have "a clerk's-eye view" and understand *Sweetbriar* "in a human and often amusing way."²⁷ Therefore, instead of intricate descriptions of the joint air force-army operations, the article described the daily accounts of an RCAF sergeant's role in the exercise. Again, the attempt here was to use humour and "human interest" accounts to educate the rest of the RCAF on the experiences, difficulties, and importance of the air force's operational responsibilities in the Arctic.²⁸ By giving this kind of an account "from the ranks," *The Roundel* hoped to appeal to a wide audience.

Non-kinetic air power operations undertaken by the RCAF in Canada's North were not limited to transport missions during *Sweetbriar*. Indeed, articles in *The Roundel* frequently highlighted other important roles. For example, an article in the December 1955 issue brought particular attention to RCAF Air Transport Command's Arctic operations (doc. 3-4). Written by ATC's public affairs officer, F/L J.D. Harvey, the contribution outlined the various aircraft and squadrons engaged in Arctic operations. They included the re-supply of RCAF units, Canada-U.S. weather stations, Royal Canadian Mounted Police detachments, and Department of Transport weather and radio bases; photographic and navigational flights for the purposes of accurately mapping Canada's Arctic region; the government's SHORAN (short-range navigation) programme; preparing sites for and supplying the Mid-Canada Line; ice reconnaissance patrols; training flights; and even the transportation of students from the RCAF Staff College and the National Defence College for "staff rides" to bases in Canada's North.²⁹ Significantly, F/L Harvey was careful to highlight the strategic importance of ATC operations in the region:

The aircraft of Air Transport Command have been penetrating the Arctic Circle ever since the Command's early days as No. 9 (T[ransport]) Group, in 1947. Lately, however, the growing interest in Canada's Northland has added impetus to flights tracking 360 degrees. The northern shores of Canada remain uppermost in the minds of defence planning-teams when they discuss the most probable routes for bombers in the event of another war.³⁰

By explicitly connecting these RCAF operations in the North to the strategic importance of the region, Harvey clearly showed that ATC was very much involved in and concerned about the Arctic.

The Roundel also included historical articles that provided essential context to contemporary air defence endeavours by outlining how the RCAF dealt with potential Axis aerial threats to Canada during the Second World War. For instance, in the May 1950 issue, Wing Commander (W/C) C.B. Limbrick, who was in charge of the air force's guided missile program under the Chief of Armament and Weapons at Air Force Headquarters (AFHQ), wrote an article entitled "Canada's Radar Outposts: A Little-known Chapter in the History of the R.C.A.F. during the Second World War."³¹ The airman recalled how the air force in Canada's remote regions – with all of the communications, climate, and transportation challenges – managed to establish fifty radar stations to warn of any Axis attack. By highlighting the important considerations that went into installing radar stations during the Second World War, Limbrick was therefore able to bring attention to the similar challenges faced by the RCAF of the 1950s in establishing an early warning system against Soviet attack. For example, with regard to the issue of where to site specific radar stations, he noted (with a touch of humour) the following:

One couldn't go out and spot a radar at a site just because the fishing looked good or the local farmer had a couple of good-looking daughters. It was necessary not only to have height of land but also to have a combination of physical conditions and station-spacing which would provide suitable coverage and safety overlapping. Thus, while some sites were in nice civilized areas, the large majority were located in isolated and almost inaccessible places.³²

In another instance, W/C Limbrick highlighted the inherent dangers of accessing some of the distant radar stations, noting that "many of the units were so remote and desolate that merely to get on to them from the ship meant a brief scuffle with the Grim Reaper."³³

Other relevant lessons from the RCAF's Second World War radar post experiences included the requirement to "alleviate the tough conditions and to provide amenities." This consisted of simple things such as the fostering of hobbies amongst radar personnel in remote locations, but it also included a sustained effort by AFHQ to provide amenities such as personal furniture, reliable and regular mail service, and entertainment such as movie projectors and films. The RCAF brass also made provisions for newspapers and magazines, which included popular titles for reading but also the means "for the literary and artistic" to produce their own "unit" publications with unique and telling titles such as *The Isolationist*.³⁴ Organized recreation such as wood carving, sports, and hunting and fishing competitions also helped to relieve boredom. Significantly, the

RCAF also provided alcohol to the isolated radar operators and even ensured access to transportation for individuals for social gatherings and companionship. As Limbrick noted, "of course there were, here and there, hardy souls who made heroic journeys on Saturday nights by trail, boat or dog sled, to small villages or canning factories for an evening of dancing or romance. Indeed, if the locations were not so isolated, I imagine some of the boys would be back there now."³⁵ Limbrick concluded that, thanks to the RCAF leadership's "general determination to defeat the monotony," morale remained high at these radar stations.

Although these Second World War radar chains were for the most part more southern than those established in Canada in the 1950s, they were also located in remote parts of the country. Therefore, the lessons on how the RCAF could deal with the inherent isolation and morale for personnel living at these sites were important for post-war air force planners. Significantly, the RCAF took into account these kinds of concerns when preparing for the construction and manning of early warning stations in the Arctic.

Operating and Living in the Arctic

Besides raising awareness amongst RCAF personnel of the strategic reasoning for operating in and deploying to the Far North, another key facet of fostering Arctic "air mindedness" was addressing the issue of operating in the Arctic, and in particular the living and working conditions for air force personnel deployed to northern establishments. The perceived harshness of Canada's North was a particular concern in certain articles in *The Roundel*, and authors sought to educate RCAF personnel about the advantages of a northern posting.

Page 14 of the first issue of *The Roundel* included a one-paragraph tidbit entitled "Our Genial North." Addressing preconceived notions of the frigid temperatures of the Arctic, the short piece begins by noting that the world's coldest spots were not within the Arctic Circle: the record went to Riverside, Wyoming, at -90°F, and the lowest temperature in Pt. Barrow, Alaska, was a comparatively balmy -56°F. Instead, the piece explains that the winter climate in the Arctic is "relatively dry" with little precipitation – what appeared to some outside visitors to be a blizzard was just previously fallen snow blown around by the high winds prevalent in the region.³⁶

Along the same vein, G/C Patriarche's previously mentioned article on Arctic strategy dispels the myth of the Arctic as purely "a barren waste of snow and ice inhabited by polar bears, explorers and eskimos [sic]." Although noting that the weather can get nasty during the winter, "much of the land as far north as the tip of Greenland clears during the summer,

vegetation and animal life thrive, and considerable open water is found.”³⁷ Furthermore, noting the almost continuous sunlight during the summer, Patriarche reveals that the spring thaw was quick and the summer was much warmer and longer than popularly understood. “Life for both men and animals,” he concludes, “presents no great problem other than that of the ever-present mosquito.”³⁸

Such considerations did not dispel geography and the obvious isolation and remoteness of northern operations. The psychological issue of operating in the High North away from home is a major theme of a 1950 *Roundel* article by RCAF Air Transport Command Warrant Officer Second Class (WO2) R.B. Hampton entitled “Arctic Glimpses.” Based on his own experiences while assigned to RCAF Station Resolute Bay, WO2 Hampton noted that the best way for air force personnel to counter feelings of desolation, loneliness, and depression – especially during the long periods of never-ending darkness during the winter months – was to establish “a regular Station routine” to take their minds off these drawbacks of northern deployments and focus on the work that needed to be done.³⁹ This kept men busy, as did rest and recreation during time off. “Most evenings,” Hampton explained, “were spent in playing cards, darts, table hockey, or in reading or sleeping.”⁴⁰

Depression was uncommon, according to the young RCAF airman. If any man showed any signs of it, he was allowed “to remain in his quarters until he felt in a better mood.” Recognizing the sensitivity of this depression issue and desiring to maintain productive and friendly relationships between these men deployed to an isolated location in the Far North, Hampton notes that all personnel “were careful not to ‘rib’ him at such times.”⁴¹ WO2 Hampton concluded by debunking the popular notion of a deployment to northern units such as Resolute Bay as a bleak experience. For an airman, the key to deploying to the Arctic was to “honestly tr[y] to preserve a healthy and cheerful attitude.” In particular, Hampton suggested that “the cultivation of a hobby or interest in the history and geography of the area helps to pass the time and can make the experience an educational and even a most pleasant one.” Moreover, as Hampton reminds airmen in his closing sentence, “there is always the assurance that one’s tour of duty is only temporary!”⁴²

In fact, it was RCAF policy to ensure that deployments to the Far North “were shorter, consisted of more transfers, less security of tenure, and less continuity of operation than other peacetime service appointments.” Given the isolation and harshness of the winter during Arctic deployments, the RCAF leadership genuinely sought to maintain some kind of normalcy for deployed air force personnel.⁴³ It was crucial to

eliminate preconceived notions about the ruggedness of living in RCAF stations in the Far North by providing airmen a sense of modernity in their accommodations and daily lives.⁴⁴ An appealing article from the August 1949 issue of *The Roundel* entitled “So You’re Going North?” addressed this very issue.⁴⁵ Written by Squadron Leader (S/L) D. Gooderham, it made excellent use of tongue-in-cheek humour. The goal was to eliminate “ignorance” amongst RCAF personnel “of all matters relating to the Canadian Arctic.” In particular, the RCAF brass instructed Gooderham “to provide Enlightenment, that those who are posted or who may be posted into the North may read and take comfort. Gen them up so that they neither take fear at anything nor overlook those things that may make their sojourn therein more pleasing.”⁴⁶ The author assumed this task with great enthusiasm, while promising to give as accurate an account of the Arctic as possible. In his own words, “Since I understand that most of the upper Brass can read, I cannot say just what I thought; but I can at least assure you that what I write below will in no way be coloured by any attempt to improve the picture.”⁴⁷

S/L Gooderham echoed the conclusions of WO2 Hampton by emphasizing that the first key to an Arctic posting was approaching it with a positive mental attitude:

If you come here with the idea that maybe it won’t be too bad and that it might even be interesting, you’ll probably find it just that, and possibly even better. If, on the other hand, you come up firmly convinced that you won’t like it, you will in all probability have a grim time for at least a part of your tour.⁴⁸

Much like other *Roundel* articles, Gooderham broached the issue of weather, disassociating the word “north” from the word “cold.” Although he admits that winter winds make Arctic stations especially cold, he drew the analogy with Winnipeg – a relatively southern Canadian city known for its bitter winters. “There have, indeed, been occasions when [Arctic winters] approached the frigidity it frequently attains at the corner of Portage and Main [in Winnipeg],” Gooderham explained, but “fortunately, unlike you effete types down south, *we* do something about it when it gets really cold. We even go to the ridiculous extreme of covering our ears.”⁴⁹

On the topic of heat inside buildings on northern bases, Gooderham observed that “the occupants have to struggle through as best they can with temperatures of 68° Fahrenheit. Covertly emphasizing modernity, he clarified that “these dull, uninteresting temperatures are attained without benefit of blubber lamps. Being fresh out of blubber lamps, the Air Force has had to resort to steam heat or oil-burning stoves.”⁵⁰

Moreover, one could not wash oneself in the traditional Arctic practice of “sewing oneself into the red flannels and applying whale oil to the face ... [because] some sluggard in Supply” failed to procure the whale oil, so the airmen had to make do with “water systems, boilers, showers, wash-basins, and washing machines.”⁵¹ His humour preyed upon popular misconceptions that equated Arctic life with the traditional survival practices of the Inuit which, while ingenious in their own right, seemed anachronistic in the modern world.

Gooderham also touched on the psychological issue of the long periods of daylight during the summer and the extended stretches of darkness during the winter. In particular, he mentioned that the summer was more difficult for air force personnel than the winter because extended periods of daylight make it difficult to sleep – a simple reality that tended to shorten tempers. Food, however, was no cause of worry. The RCAF officer reassured his air force brethren that “a combination of an expanded ration scale and top-flight cooks” meant that food was better at these bases than at RCAF stations further south.⁵² Gooderham also pointed out that the worst part about being posted to the North was the separation from family. Married quarters were not available for the most northern bases. To compensate, airmen benefitted from a short tour of duty for northern postings (only six months compared to one or two years in more southern bases), fairly regular mail service and “radio messages for urgent occasions or when aircraft cannot get in,” and air drops of supplies when aircraft were unable to land. In the latter case, “the odd bottle of beer gets broken in the process, but there is usually enough for the Saturday night party.”⁵³

Along the same lines, opportunities for recreation also played heavily into Gooderham’s depiction of the “friendly Arctic” (to borrow Vilhjalmur Stefansson’s famous characterization).⁵⁴ When the weather was favourable, this included fishing and hunting – activities that “many people would gladly pay much money” to do down south. Indoor activities were also popular, including movies, hobbies, crafts, music, sports equipment, and photographic equipment – although it was up to the individual to make the most of these opportunities. After offering a few more suggestions for RCAF personnel who might deploy to the Arctic – including ensuring “that arrangements are made for adequate funds to be forwarded to your family” – Gooderham concluded that “it is not altogether impossible that you will return from the North alive and healthy. If your sanity has suffered a slight decline, you will no doubt immediately be recommended for a posting to AFHQ. Good luck to you.”⁵⁵ Clearly, being posted to Canada’s North was not as bad as some

RCAF personnel thought it would be – provided, of course, they were educated on the experience by articles that fostered Arctic “air mindedness,” such as this one in *The Roundel*.

Articles and features in *The Roundel* also helped develop Arctic “air mindedness” by emphasizing modernity and normalcy for postings to the region. For example, an article in the March 1950 issue discussed sustenance in case a crew had to face a forced landing in the Arctic. Titled “For the Arctic Gourmet,” this article used humour – coupled with Ray Tracy’s clever cartoons – to outline a variety of edible plant and animal life available in Arctic climes (see doc. 4-4).⁵⁶

Another major theme was survival training for the northern climate. While some authors described the activities offered at the RCAF Survival Training school at Fort Nelson, British Columbia, others outlined tips for coping with the harsh climate at northern bases or surviving if an airman had to ditch his aircraft in the Arctic region.⁵⁷ Features on RCAF bases located in more northerly parts of the country such as Whitehorse and Goose Bay were common in *The Roundel* during this time period in “The Roundel Visits” series.⁵⁸ Other articles touched on efforts by the RCAF to enhance its Arctic operational capabilities, ranging from topics such as aircraft ski research at the National Research Council (NRC) to arming aircraft that operate in the Arctic, to name but a few.⁵⁹

Efforts to bring normalcy and modernity were not confined to RCAF personnel operating in the Arctic. One of the most important roles that the air force undertook in Canada’s northern region was the Arctic re-supply strategic airlift missions that Air Transport Command undertook every spring. Starting in 1955, *The Roundel* began detailing operation *Spring Re-Supply* by describing efforts of the air force to bring upwards of 1.25 million pounds of food, fuel, equipment, and personnel including “cooks, radio operators, mechanics, and meteorologists” from Canada and the United States to the five Canada-U.S. weather bases at various points in the Arctic archipelago (including Alert and Eureka).⁶⁰ The articles reiterated that the cargo included recreational supplies to help the personnel pass by long periods of time at these isolated bases. With pride, *The Roundel* also reported how ATC crews had become efficient at quickly landing on the thick ice, offloading, and then taking off again for another supply flight. Importantly, the Arctic resupply articles also detailed how along with the supplies in one flight came a dentist to provide annual oral hygienic care to personnel; as one article noted, “it was an interesting sight to watch the lines of patients anxiously awaiting his arrival.”⁶¹

Efforts to bring southern Canadian normalcy and modernity to the North were not limited to RCAF personnel. They were also extended to

the indigenous Inuit people of the Arctic. These endeavours included benevolence efforts such as providing mercy medical flights for those who were ill and dental care for individuals whose teeth were hurting.⁶² They also consisted of efforts to bring the joy – and gifts – of the holiday season to the Far North. These endeavours culminated in the mid-1950s with the famous Operation *Santa Claus*, which saw RCAF Air Transport Command air drop “something extra” to both RCAF personnel and Inuit communities at Christmastime.⁶³ All of these northern-related topics were covered in *The Roundel*, ensuring that RCAF personnel were conscious of what it took to live in the Arctic during a posting to the region and the positive contributions that their service made to northern life.

Occasionally, small features in *The Roundel* gave tidbits of useful information to RCAF personnel on operating in the Arctic. For example, one feature brought to light the fact that de-icing one’s aircraft was an absolute necessity:

There is often a thin coat of ice under the fluffy blanket of snow which has accumulated on the wings of your plane. Don’t depend on the snow blowing off during take-off, even the light kind, and check for ice. Falling snow sticks at temperatures above 10°F. It also forms a coat of ice between 32 and -10°F.⁶⁴

Another feature warned about the perils of guessing the depth of snow on the ground from the air.⁶⁵ One informative piece suggested that aircrews flying in snowy conditions where it was difficult to determine the distance to the ground should carry a pine tree (or “some object of known size”) with them to drop on the ground for use as a point of reference for landing.⁶⁶

The Roundel also reported on efforts by RCAF personnel working in the Arctic to make the best of their operating conditions through the use of creativity and humour. For instance, some clever airmen began a custom in the early 1950s to invest individuals who had crossed the Arctic Circle by air into the Order of Airborne Ice Worm. Members of the order included such distinguished individuals as CAS Air Marshal Wilf Curtis and even the Duke of Edinburgh, who as official members received their own personalized Ice Worm certificates.⁶⁷

Other RCAF personnel employed their literary skills by writing poetry about their experiences on northern Canadian postings. For example, Corporal W.F. Kervin at RCAF Station Whitehorse penned a humorous poem entitled “Baby, It’s Cold Inside.” Based on explicit restrictions against adjusting the thermostat, a sample verse read:

Do not touch the many switches,
Do not fool around with knobs,

Do not change the calibration –
Muffle up your frozen sobs!
Do not kick it, do not bash it,
Do not lift it from the floor.
Just be careful how you treat it
And it might warm up some more.⁶⁸

Additional short pieces consisted of expert reviews of books and manuals produced by the RCAF and the NRC on Arctic surveying and navigation (including publications by noted RCAF Arctic navigator W/C Keith Greenaway).⁶⁹ Others included announcements of honours for notable accomplishments by RCAF personnel during Arctic operations. For example, the August 1958 issue of *The Roundel* announced that the commanding officer of 408 Photographic Squadron, W/C J.G. Showler, had been awarded the 1957 Trans-Canada McKee Trophy for his unit's Arctic survey missions using SHORAN.⁷⁰ Unfortunately, *The Roundel* also had the sad duty to report on fatal air accidents that occurred in RCAF Arctic operations, such as the dedication of a memorial cairn to seven RCAF airmen who lost their lives when their Lancaster crashed at Alert on Ellesmere Island in July 1950.⁷¹ This piece was an unfortunate reminder of the difficulties of operating in Canada's northern region. Along with the variety of features mentioned above, it contributed to developing Arctic "air mindedness" amongst RCAF personnel.

Reflections on The Roundel

The RCAF leadership utilized the service's magazine *The Roundel* to reorient strategic geographical thinking of air force personnel and inculcate a sense of Arctic "air mindedness" during the early Cold War. Not only did *The Roundel* promote awareness of the strategic necessity for air force personnel to deploy to the Arctic, but articles addressed specific operations in Canada's North. By emphasizing normalcy and modernity, they also highlighted the surprisingly good living and working conditions at RCAF Arctic bases. Other features in *The Roundel* addressed issues such as tips for Arctic flying and survival in the harsh climate, while some RCAF personnel utilized their creative, writing, and humour skills to give a positive depiction of what may have otherwise been perceived as a dreary and depressing posting to an Arctic unit. In any event, having an outlet like *The Roundel* to examine issues relevant to the RCAF in Canada's North was something that the service's leadership and personnel could appreciate, and it went a long way towards the development of an Arctic "air mindedness" amongst all who regularly read the service publication. Moreover, the publication of Arctic-themed articles did not cease after the

1950s. *The Roundel* continued to foster Arctic “air mindedness” until it was discontinued in 1965.⁷²

Notes

¹ The authors are referring to Canada’s Arctic as being a traditional front for defending Canadian sovereignty, but the label also applies in the military context. Ken S. Coates, P. Whitney Lackenbauer, William R. Morrison, and Greg Poelzer, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen Publishers, 2008). The best account of the growing threat of Soviet strategic bombers to North America and Canada-U.S. endeavours to counter it remains Joseph Jockel’s *No Boundaries Upstairs*. Joseph Jockel, *No Boundaries Upstairs: Canada, the United States and the Origins of North American Air Defence, 1945-1958* (Vancouver: UBC Press, 1987).

² James Eayrs, *In Defence of Canada Vol. III: Peacemaking and Deterrence* (Toronto: University of Toronto Press, 1972), 320-31.

³ See W.A.B. Douglas, *The Creation of a National Air Force: The Official History of the Royal Canadian Air Force Vol. II* (Toronto: University of Toronto Press and the Department of National Defence, 1986), Chapters 2-4.

⁴ See Jockel, *No Boundaries Upstairs*.

⁵ Jonathan F. Vance, *High Flight: Aviation and the Canadian Imagination* (Toronto: Penguin, 2002), vii-viii.

⁶ Air Marshal W.A. Curtis, Chief of the Air Staff, “A Message from the CAS,” *The Roundel*, vol. 1, no.1 (November 1948): 1. I also discuss the importance of *The Roundel* and the R.C.A.F. *Staff College Journal* for the RCAF leadership in fostering RCAF air power and air defence discourse in my previous article for the 2008 Air Force Historical Workshop. Richard Goette, “Air Defence Leadership During the RCAF’s ‘Golden Years,’” in William March, ed., *Sic Itur Ad Astra: Canadian Aerospace Power Studies Vol. 1: Historical Aspects of Canadian Air Power Leadership* (Ottawa: Department of National Defence, 2009), 55-56.

⁷ Larry Milberry, *Sixty Years: The RCAF and CF Air Command 1924-1984* (Toronto: CANAV Books, 1984), 209.

⁸ Reproduced as the cover to *Northern Skytrails: Perspectives on the Royal Canadian Air Force in the Arctic from the Pages of The Roundel, 1949-65*, eds. Richard Goette and P. Whitney Lackenbauer, *Documents on Canadian Arctic Sovereignty and Security* (DCASS) No. 10 (Calgary and Waterloo: Centre for Military, Security and Strategic Studies, Arctic Institute of North America, and Centre on Foreign Policy and Federalism, 2017).

⁹ F/L E.P. Wood, “Northern Skytrails: The Story of the Work of the R.C.A.F. in Canada’s Arctic and Sub-arctic Part 1,” *The Roundel*, vol. 1, no.1 (November 1948): 28-32. Reproduced as doc. 111 in this volume.

¹⁰ *Ibid.*, 28.

¹¹ Interestingly, the author also notes that this series consisted of five hundred typewritten pages in total and that, as a result, “much material has been omitted as having little interest except for the historian or the arctic specialist.” *Ibid.* Wood’s full manuscript is on file at DND, Directorate of History and Heritage (DHH), and will be published as a future DCASS volume edited and introduced by Lackenbauer and Peter Kikkert.

¹² Ibid.

¹³ F/L E.P. Wood, "Northern Skytrails: The Story of the Work of the R.C.A.F. in Canada's Arctic and Sub-arctic Part 11," *The Roundel*, vol. 11, no.1 (September 1949): 9, reproduced as doc. 1-11 in this volume. For further information on early post-Second World War operations in Canada's North, see the following: Hugh Halliday, "Recapturing the North: Exercises 'Eskimo,' 'Polar Bear,' and 'Lemming,' 1945," *Canadian Military History*, vol. 6, no.2 (Spring 1997): 29-38; Hugh Halliday, "Exercise 'Musk-Ox': Asserting Sovereignty North of 60," *Canadian Military History*, vol. 7, no.4 (Autumn 1998): 37-44.

¹⁴ For details on the issue of the United States and Canadian Arctic sovereignty during the Cold War, see Coates et al., *Arctic Front*, Chapters 2 and 3, and P. Whitney Lackenbauer and Peter Kikkert, "Sovereignty and Security: The Department of External Affairs, the United States, and Arctic Sovereignty, 1945-68," in Greg Donaghy and Michael Carroll, eds., *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909-2009* (Calgary: University of Calgary Press, 2011), 101-20.

¹⁵ See, for example, the following from an airman with Air Transport Command H.Q.: WO2 R.B. Hampton, "Arctic Glimpses," *The Roundel*, vol. 2, no.12 (November 1950): 38-42.

¹⁶ Group Captain V.H. Patriarche, "The Strategy of the Arctic," *The Roundel*, vol. 2, no.6 (April 1950), doc. 3-1 in this volume.

¹⁷ See, for example, DHH 73/1501, *Nineteen Years of Air Defense*, NORAD Historical Reference Paper No. 11 (Colorado Springs: North American Air Defence Command, Ent Air Force Base, Colorado, 1965), 11-12.

¹⁸ Patriarche, "The Strategy of the Arctic," 42. Emphasis added.

¹⁹ Marshal of the RAF The Viscount Trenchard, "Magainot Mentality," *The Roundel*, vol. 3, no.5 (April 1951): 37. For background on Trenchard's theories on strategic bombing see the following: Phillip S. Meilinger, "Trenchard and 'Morale Bombing': The Evolution of Royal Air Force Doctrine Before World War II," *Journal of Military History*, vol. 60, no.2 (April 1996): 243-70; Phillip Meilinger, "Trenchard, Slessor and Royal Air Force Doctrine Before World War II," in Phillip S. Meilinger, ed., *The Paths of Heaven: The Evolution of Airpower Theory* (Montgomery: Air University Press, 1997), 41-78.

²⁰ Trenchard, "Magainot Mentality," 38.

²¹ Ibid. Another British air power legend, MRAF Lord Arthur Tedder, made much the same conclusion regarding the importance of bombers in the Cold War era in an additional article from *Air Clues* that was reprinted in *The Roundel* in 1950. MRAF Lord Arthur Tedder, "Air Defence: An Address to the Royal Empire Society," *The Roundel*, vol. 2, no.9 (July-August 1950): 50-54.

²² Trenchard also strongly recommended that air force planners should read Alexander de Seversky's most recent book, "Air Power: Key to Survival," noting that it "is nearer to my own views on defence questions than anything I have heard or read, in this country or any other, about the future of world defence." Ibid., 38-39.

²³ Squadron Leader H.C.D. Upton, "The Ground Observer Corps," *The Roundel*, vol. 5, no.8 (September 1953): 10-13; "The Ground Observer Corps," *The Roundel*, vol. 9, no.10 (December 1957): 11-13; Squadron Leader J.E. Mahoney, "Aircraft Control and Warning in the R.C.A.F.," *The Roundel*, vol. 6, no.4 (April 1954): 4-10; Flight Lieutenant A.T. Paton, "NORAD: International Guardian," *The Roundel*, vol. 11, no.5 (June 1959): 2-9; "Canadians at Colorado Springs," *The Roundel*, vol. 11, no.5 (June 1959): 10-13; S/L L.J. Nevin, "Operation Deep Freeze," *The Roundel*, vol. 10, no.6 (August 1958): 20-23

(doc. 3-2 in this volume); F/O S.G. French, "The Mid-Canada Line," *The Roundel* [three parts], vol. 10, no.3 (April 1958): 2-5, 31; no.4 (May 1958): 10-15; and no.5 (June-July 1958): 12-18 (docs. 6-1 to 6-4 in this volume); S/L R. Wood, "Stand-by at Churchill," *The Roundel*, vol. 9, no.1 (January-February 1957): 12-13 (doc. 3-8 in this volume).

²⁴ A sampling includes James Hay Stevens, "The Interceptor's Future," *The Roundel*, vol. 2, no.9 (July/August 1950): 58-62; "The CF-100," *The Roundel*, vol. 2, no.5 (March 1950): 3-4; Wing Commander H.R. Footitt, "File Analysis: AFHQ S60-3-63 The Avro CF-100," *The Roundel*, vol. 4, no.9 (October 1952): 15-21; "Avro Arrow," *The Roundel*, vol. 9, no.9 (November 1957): 25; "Arrow Pilot," *The Roundel*, vol. 10, no.5 (June-July 1958): 28.

²⁵ For more on Exercise *Sweetbriar*, see Milberry, *Sixty Years*, 215-16.

²⁶ Sergeant D.J. Blain, Canadian Joint Air Training Centre, "Sweetbriar Diary," *The Roundel*, vol. 3, no.10 (December 1950): 37-46 (doc. 3-3).

²⁷ Editor's Note, *Ibid.*, 37.

²⁸ *Ibid.*, 37-46. Indeed, one of the most prevalent themes in the article was not the joint and combined operations, but the many instances where RCAF aircraft had to be deployed on search-and-rescue missions to look for and drop supplies to survivors of aircraft that had crashed in the harsh conditions.

²⁹ F/L J.D. Harvey, "North of Fifty-Four: The Northern Operations of Air Transport Command," *The Roundel*, vol. 7, no.11 (December 1955): 3 (doc. 3-4). For another account of the RCAF's SHORAN programme in *The Roundel*, see F/L H.N. Astrof, "9-Year Job Ends," *The Roundel*, vol. 9, no.8 (October 1957): 15-16 (doc. 3-6).

³⁰ Harvey, "North of Fifty-Four," 3.

³¹ Wing Commander C.B. Limbrick, "Canada's Radar Outposts: A Little-known Chapter in the History of the R.C.A.F. during the Second World War," *The Roundel*, vol. 2, no.7 (May 1950): 39-42. Limbrick was a radar operator during the Battle of Britain, after which he was one of the RCAF officers responsible for building and operating an early warning radar system along Canada's east and west coasts and in the northern Prairie provinces, Ontario, and Quebec.

³² *Ibid.*, 40.

³³ *Ibid.*

³⁴ *Ibid.*, 42.

³⁵ *Ibid.*

³⁶ "Our Genial North," *The Roundel*, vol. 1, no.1 (November 1948): 14.

³⁷ Patriarche, "The Strategy of the Arctic," 38.

³⁸ *Ibid.*, 39.

³⁹ Hampton, "Arctic Glimpses," 39.

⁴⁰ *Ibid.*, 40.

⁴¹ *Ibid.*, 42.

⁴² *Ibid.*

⁴³ Goette, "Air Defence Leadership," 57-58; DHH 74/649, "The Air Defence of Canada," 97. Quote from former.

⁴⁴ For more on efforts by the Canadian government to bring greater modernity/modernism to locations in Canada's North see P. Whitney Lackenbauer and Matthew Farish, "High Modernism in the Arctic: Planning Frobisher Bay and Inuvik," *Journal of Historical Geography*, vol. 35, no.3 (July 2009): 517-44.

⁴⁵ S/L D. Gooderham, "So You're Going North?," *The Roundel*, vol. 1, no.10 (August 1949): 23-25 (doc. 5-1).

⁴⁶ *Ibid.*

-
- ⁴⁷ Ibid.
- ⁴⁸ Ibid.
- ⁴⁹ Ibid.
- ⁵⁰ Ibid., 24.
- ⁵¹ Ibid.
- ⁵² Gooderham, "So You're Going North?" (doc. 5-1).
- ⁵³ Ibid., 24-25.
- ⁵⁴ Vilhjalmur Stefansson, *The Friendly Arctic: The Story of Five Years in Polar Regions* (New York: Macmillan, 1922).
- ⁵⁵ Gooderham, "So You're Going North?" (doc. 5-1).
- ⁵⁶ R.V. Dodds, RCAF Director of Public Relations, "For the Arctic Gourmet," *The Roundel*, vol. 2, no.5 (March 1950): 38-40 (doc. 4-4).
- ⁵⁷ F/L S.E. Alexander, "RCAF Survival Training School," *The Roundel*, vol. 1, no.6 (April 1949): 9-11; F/O L.W.F. Beasleigh, "The Complete Survivalist," *The Roundel*, vol. 5, no.4 (April 1953): 40-42.
- ⁵⁸ See, for example, the following: F/L T.J. MacKinnon, "The Roundel Visits: RCAF Station, Whitehorse," *The Roundel*, vol. 1, no.10 (August 1949): 28-33 and F/L M.M. Lee, "The Roundel Visits: RCAF Station, Goose Bay," *The Roundel*, vol. 2, no.7 (May 1950): 17-27.
- ⁵⁹ G.J. Klein, "Aircraft Ski Research at N.R.C.," *The Roundel*, vol. 3, no.3 (February 1951): 30-35; S/L E.N. Henderson, "The Arctic Armourer," *The Roundel*, vol. 4, no.2 (February 1952): 1-5 (doc. 4-2).
- ⁶⁰ F/L J.D. Harvey, "Spring Re-Supply in the Arctic," *The Roundel*, vol. 7, no.8 (September 1955): 17-19; "Arctic Airlift," *The Roundel*, vol. 19, no.3 (April 1958): 20-21 (doc. 3-10); Corporal G.A. Walker and W.M. Noice, "Operation Re-Supply," *The Roundel*, vol. 11, no.5 (June 1959): 16-17 (doc. 3-7). Quote from first article, page 17.
- ⁶¹ Ibid. Quote from Harvey, "Spring Re-Supply," 18.
- ⁶² "Mercy Flight," *The Roundel*, vol. 9, no.8 (October 1957): 2 (doc. 3-9); Dr. P.E. Moore, Director, Indian Health Services, Department of National Health and Welfare, to Air Marshal Wilfred Curtis, Chief of the Air Staff, National Defence Headquarters, reproduced in "A Tribute to S.A.R.," *The Roundel*, vol. 3, no.5 (April 1951): 47; [front cover], *The Roundel*, vol. 5, no.2 (February 1953).
- ⁶³ F/L J.D. Harvey, Director of Public Relations, "Operation Santa Claus," *The Roundel*, vol. 6, no.2 (February 1954): 44-46; F/L J.D. Harvey, "Operation 'Santa Claus,'" *The Roundel*, vol. 7, no.2 (February 1955): 16-20. See also F/L S.E. Alexander, "How Father Creesimiss Came to Cambridge Bay," *The Roundel*, vol. 3, no.1 (December 1950): 34-35.
- ⁶⁴ "Take it Off!," *The Roundel*, vol. 4, no.2 (February 1952): 32.
- ⁶⁵ "Snow-Depth Can't be Guessed," *The Roundel*, vol. 4, no.2 (February 1952): 1-5.
- ⁶⁵ "Take it Off!," 32.
- ⁶⁶ "Don't Forget Your Pine Tree," *The Roundel*, vol. 4, no.1 (January 1952): 35.
- ⁶⁷ "Arctic Nature Note," *The Roundel*, vol. 4, no.7 (July-August 1952): 46; "Ice-Worm Certificate," *The Roundel*, vol. 7, no.1 (January 1955): 32. Although ice worm species exist, Canadian popular culture usually equates them with Robert Service's "The Ballad of the Ice-Worm Cocktail," wherein a fake ice worm made of spaghetti is the subject of a bar room wager, or the popular interwar folk song "When the Ice Worms Nest Again." See Robert W. Service, *The Trail of '98* (New York: Grosset & Dunlap, 1910), 209, and Edith Fowke, "When the Ice Worms Nest Again," *The Canadian Encyclopedia*. Thanks to Whitney Lackenbauer for this explanation.

⁶⁸ Corporal W.F. Kervin, "Baby, It's Cold Inside," *The Roundel*, vol. 4, no.4 (April 1952): 5. This poem was reprinted from the RCAF Station Whitehorse newsletter the "Knee Bird."

⁶⁹ Svenn Orvig, Review of Moira Dunbar and Keith R. Greenaway, *Arctic Canada From the Air* (Ottawa: Defence Research Board, 1956). Dr. Orvig was an associate professor in the Department of Geography at McGill University and the former director of the Montreal Office of the Arctic Institute of North America. Greenaway, sadly, recently passed away after decades of service to his country. For a good account of his life, see Colonel Morris Gates, "The Passing of an Icon: Brigadier-General Keith R. Greenaway, CM, CD (Ret) 1916-2010," *Airforce Magazine*, vol. 34, no.1 (Spring 2010): 9-23.

⁷⁰ "W/C Showler Awarded McKee Trophy for Arctic Survey," *The Roundel*, vol. 10, no.6 (August 1958): 31-32 (doc. 3-7). For more on this unfortunate accident, see Rachel Lea Heide, "Frigid Ambitions: The Venture of the Alert Wireless Station and Lessons Learned for the Canada First Defence Strategy," in *De-Icing Required: The Canadian Air Force's Experience in the Arctic*, ed. P. Whitney Lackenbauer and William March, Canadian Aerospace Power Studies Series No.4 (Trenton: Canadian Forces Air Warfare Centre, 2012).

⁷¹ "Dedication at Midnight," *The Roundel*, vol. 5, no.10 (November 1953): 18.

⁷² For example, the entire April 1960 issue of *The Roundel* was dedicated to the Arctic. "Special Arctic Issue," *The Roundel*, vol. 12, no.4 (May 1960).



6

Sovereignty for Hire: Civilian Airlift Contractors and the Distant Early Warning (DEW) Line, 1954-61

Daniel Heidt and P. Whitney Lackenbauer*

These air operations [associated with the construction and operation of the DEW Line] represented an unprecedented windfall for the Canadian air industry. One company [Spartan] secured a valuable contract for help with the preliminary air surveys and ground support operations, and eleven airlines, flying many types of aircraft, received very lucrative work during the hectic construction phase.... The high profits transformed some of the companies – Pacific Western, Maritime Central, and Transair – into sizeable regional air carriers. Air travel to and from the Arctic was made infinitely easier by all the installations after 1945 and by the considerable traffic the many stations generated.... The DEW Line itself was a busy air route for military and commercial aircraft delivering supplies, transferring staffs, and bringing in inspecting officers, doctors, clergymen, and visitors. By 1958, it was asserted, “as one measure of the profound change wrought by the DEW Line, you may now fly completely across the North American Arctic without losing sight of the lights of a human habitation, and

* Originally published as a chapter in *De-Icing Required!: The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, eds. P. Whitney Lackenbauer and W.A. March, *Sic Itur Ad Astra: Canadian Aerospace Power Studies Series Vol. 4* (Trenton: Canadian Forces Air Warfare Centre, 2012), 95-112.

rarely being more than 25 miles [40 kilometres (km)] from an airstrip.”

Morris Zaslow, *The Northward Expansion of Canada*¹

The Distant Early Warning or DEW Line, built from 1954 to 1957 and operated for three decades, still intrigues Canadians. Designed to detect Soviet long-range bombers flying over the North Pole, the scale of the megaproject was staggering. “Stretching for 2500 miles across the Arctic, it required the biggest task force of ships since the invasion of Europe and the largest air operation since the Berlin airlift to take in the supplies,”² Department of Northern Affairs and National Resources (DNANR) official C.J. Marshall trumpeted in a 1957 magazine article. “More than 7000 men laboured through two short Arctic construction seasons to complete the work on schedule. Small wonder that many consider the project one of the most dramatic engineering achievements of our time and a milestone in the development of the Arctic.”³

The industrial logistics associated with the DEW Line were unprecedented in the Arctic and had significant impacts on Canadian commercial air and sea carriers. “Support and resupply vitally affect the continuous, reliable, and economical functioning of the line,” a 1955 report documenting the basic philosophy of DEW Line operations noted. “Because of the geographical location of the stations, all equipment, materiel, supplies, including POL [petroleum, oil, and lubricants] and sustenance items must be either flown in, delivered during the very short period of the summer by sea, or hauled laterally to a site by cat train operating in the winter season.”⁴ The DEW Line Agreement guaranteed that “Canadian commercial carriers will to the fullest extent practicable be afforded the opportunity to participate in the movements of project materials, equipment and personnel within Canada.”⁵ This proved to be a herculean task in practice. By the fall of 1956, 352,300 short tons (319,600 metric tonnes [MT]) of materiel had been delivered to the DEW Line. Aircraft were responsible for 106,000 tons (96,162 MT), and 84 percent of the 24,612 commercial flights (covering 16.5 million miles [26.5 million kilometres]) were Canadian.⁶ It was the largest cargo airlift in the history of Canadian aviation, and the heavy volumes of air freight facilitated rapid expansion of Canadian aviation companies. Pacific Western Airlines (PWA, eventually Canadian Airlines) and Maritime Central Airways (MCA, which became the root company for Eastern Provincial Airways) “moved from being small bush lines to large integrated national airline companies.”⁷

Although the project was joint, the United States (U.S.) dominated much of the program, and a variety of past journalists and present scholars have argued that Canada was too parsimonious and inactive to protect its sovereignty. These critics focus on government/military personnel and equipment sent to DEW Line stations. Even today, the Harper government emphasizes a requirement for a strong Canadian military presence in the Arctic to defend our legal sovereignty. This mentality overlooks alternatives, particularly opportunities for the Air Force to draw upon civilian assets to accomplish its Arctic mission. The vast commercial aspects of DEW Line operations are often forgotten,⁸ even though civilian aircraft played a pivotal role in transporting equipment and personnel to the remote radar installations. To do so, the limited pre-existing Canadian northern airlift capacity had to be dramatically expanded, and fierce competition ensued for these lucrative contracts. The Canadian government, conscious of nation-building possibilities, as noted above, secured guarantees from the U.S. that Canadian carriers would be utilized "to the fullest extent practicable." Canadian companies expanded to meet the new increased demand and fought to keep these contracts from American and Canadian rivals. Investments in new aircraft and the need for continued work ensured that Canadian companies jealously guarded and policed American airlift competition independently of Ottawa. In the end, American DEW Line contract dollars afforded Canadian commercial carriers the opportunity to buttress Canadian Arctic sovereignty.

Historian Michael Evans tidily summarized that the agreement "allowed the United States to build and operate the DEW line, protected the sovereignty of the Canadian government while offering financial subsidies to the Canadian economy and contributing to the development of the Canadian frontier."⁹ But this is not the whole story. The decision to allow the U.S. to pay for the resupply mission limited Canada's ability to influence specific decisions, such as the length of contracts or the size of companies employed. While this decision did not compromise the American respect for the jurisdiction of Canadian governmental bodies such as the Air Transport Board (ATB) or compromise the Canadian presence generated by the airlift, it did compromise the full realization of the visions of Canadian departments such as the Department of Northern Affairs and National Resources. Finally, the lessons learned from this exercise in civil-military relations remain to be clarified. Although the joint nature of the DEW Line airlift lacks a modern parallel, many of the lessons learned concerning the employment of civilian contractors remain noteworthy. This story has particular relevance today as Air Force and

Joint Task Force North planners assess the feasibility of contracting civilian aircraft to fulfill defence requirements in the Far North.

Background

As early as 1946, Canadian and American authorities had begun to consider the possibility of building a radar chain in the Arctic to give warning of any Soviet attack. At that time, the available technology could not guarantee complete coverage of the northern frontier or accurate tracking of aircraft, so investing huge sums in an ineffective early-warning system seemed wasteful. Conditions changed by 1949, however, and Canada and the U.S. agreed to a cooperative effort, the Pinetree Line, consisting of thirty-three radar stations across the mid-north from Vancouver Island to Labrador. By the time this radar network was completed, the Soviets had upgraded their bomber force, prompting more ambitious plans to increase North American radar coverage by building stations further and further north. When the Soviets exploded their first hydrogen bomb in August 1953, the question became more urgent. Continental defences would be critical to deter communist aggression. "By extending the air defence system northwards such bombers could be engaged before reaching their intended targets," strategist R.J. Sutherland explained. "Almost equally important, by extending the area of radar coverage the risk of saturation of the defences could be reduced. Finally, by locating strike aircraft or refuelling aircraft on the northern bases, the range and speed of response of the strike forces could be improved."¹⁰ In short, defence planners sought to achieve strategic defence in depth.

"Massive retaliation," a strategy outlined by U.S. President Dwight Eisenhower in his January 1954 State of the Union address, depended upon adequate warning times so that the Americans could mobilize their strategic forces. Although a Maginot Line-type radar "fence" around North America was out of the question, multiple radar lines extending northward could offer adequate warning. The Liberal government in Ottawa was a willing partner. In June 1954, defence research scientists recommended the construction of a mostly unmanned Mid-Canada Line, along the 55th parallel, paid for entirely by Canada. This project was attractive for several reasons. First, the technology was available in Canada and had been developed by Canadian scientists (hence its nickname of "the McGill Fence"). Second, building radar stations in the middle North would be less expensive than building an Arctic chain. Canada could afford to build and support a sub-Arctic network. Third, a Canadian project averted the troublesome issue of American presence on Canadian soil – sovereignty would not be an issue. Accordingly, Canada built ninety-eight Mid-Canada stations by 1957 at a total cost of \$250

million.¹¹ The U.S., however, insisted on more lead time to mobilize its deterrent, which raised more significant sovereignty questions in Canada.

In June 1954, the Canada-U.S. Military Studies Group urged that a radar network be built stretching more than eight thousand kilometres from Alaska to Baffin Island. The U.S. government had already contracted the civilian Western Electric Company (WEC) to design and construct an experimental system, which demonstrated its feasibility. Under pressure from its American allies and the Royal Canadian Air Force (RCAF), the Canadian government consented to these plans. The government, already stretched thin honouring its North Atlantic Treaty Organization (NATO) commitments in Europe, was committed to the Mid-Canada Line and could not afford the kind of High Arctic radar installations required to satisfy its superpower ally. The Americans would have to pay for and build the DEW Line network, even if three-quarters of it was in Canada. Before the year was out, the U.S. Air Force (USAF) asked Western Electric to proceed as quickly as possible with building the entire system, with the ambitious target date of 31 July 1957. There was no time for Canada to carefully ponder its options in this case, as it had with earlier post-war Arctic defence projects. Time was of the essence.

Canada did not write a blank cheque, despite the concerns of some critics. Ralph Campney, the Minister of National Defence, explained the government's logic to the Cabinet Defence Committee on 20 January 1955. "It appears that the continuing aspects of the project are more important to Canada than the transient operations of a crash nature and that it would be desirable to have the RCAF take as substantial a share as practicable in the operation and manning of the line," he explained. "It also appeared desirable to have as much as possible of the continuing logistic support performed by Canadian agencies so that traffic in the arctic should be, as much as possible, Canadian. This would be an effective way of exercising our sovereignty in a continuing manner."¹² Details remained unclear, but Campney emphasized the need to study issues of transportation and resupply during the operational phase "in order to ascertain the possible requirements and the possibilities and consequences of Canadian participation in them." Canada did not need to participate in construction and installation (its interests were protected by bilateral agreement), but it planned to contribute substantially once it was actually completed.¹³ Cabinet endorsed the minister's recommendation on 26 January 1955 and sought a formal agreement with the United States. For its part, the U.S. knew that "Canadian agreement and partnership on an adequate scale is essential to any effective continental defense system," otherwise the project would be "dead in the water."¹⁴

Ottawa's primary concern during the negotiations that led to the creation of the DEW Line was sovereignty. All told, Canadian negotiators reached an advantageous agreement with the Americans, signed on 5 May 1955. All sites were jointly selected, and Canada maintained ownership of all lands affected. The U.S. bore the full cost of construction, but it subcontracted to Canadian companies and hired Canadian civilian technicians and support staff. Moreover, Canada insisted upon the right of inspection and to approve any change of plans, and it reserved the right to take over the operation of any (or all) of the Canadian-based stations at any time. Wildlife was also to be respected and Canadian airspace protected. The United States committed to share geological, hydrographical, and other scientific data obtained during the construction and operation phases, and it agreed that Canadian government ships and aircraft could use landing facilities at beaches and airstrips. All told, "the list of conditions read like a litany of Canadian sovereignty sensitivities and desire for control," historian Alexander Herd notes.¹⁵ Of course, the real test of control would come after the bulldozers began digging into the permafrost.

Canadian Commercial Carriers and DEW Line Construction

The DEW Line was a military project financed by the USAF, but it contracted the Western Electric Corporation of New York to build the system. WEC divided the line into three sectors and subcontracted the actual construction work to one American and two Canadian firms: Northern Construction Company and the Foundation Company of Canada. Once completed, the line would be operated and supplied by a civilian contractor, with the Air Force's responsibility limited to supervision and control of the project.¹⁶

National Defence and Defence Production Canada concurred that the U.S. should have sole responsibility for the construction phase. A single authority would more effectively manage the project, and Canada was already fully committed to the Mid-Canada Line. Furthermore, senior Canadian officials advised that Canada should not be mixed up in a project which might not work. Ottawa would assist the U.S. authorities in organizing and using Canadian resources, and making available armed forces and government facilities, during the construction phase.

From the outset, the Canadian government recognized that the massive airlift required for the construction and subsequent operation of the DEW Line afforded a golden opportunity for the expansion of Canadian commercial aviation. It was not clear, however, whether the United States would agree to the use of Canadian carriers or instead insist on using its own commercial or even military resources. Securing benefits

for Canadian civilian companies required official support, and individuals like Deputy Minister of Northern Affairs and National Resources R.G. Robertson tirelessly promoted the Canadian commercial airlift cause.¹⁷ He articulated his vision most fully in 1956, but he had outlined it the year before. The DEW Line's airlift "arrangements will influence the transportation pattern in the north for many years to come," Robertson predicted.

If the facilities established for the D.E.W. line can be used for civil purposes they will be of great assistance in the development of the north, but if they are such that they either exclude or hamper the easy flow of civilian traffic, the consequences could be unfortunate. We would never suggest that the U.S.A.F. adopt arrangements which would make their task of operating the D.E.W. line more difficult or more expensive, but we feel it should be possible to establish a transportation pattern which will satisfactorily serve both the military and civilian requirements at the same time. Economy to all concerned should result from a well-conceived plan.¹⁸

Robertson recognized that Canada could not achieve this goal using military aircraft. He was also concerned about the vertical airlift routes, desiring that Canadian cities be used as bases of operation for northern airlift rather than American cities such as Fairbanks, Alaska.¹⁹ The Department of Transport (DoT) supported this vision.²⁰ The opportunities were also obvious to commercial carriers and journalists. "Officials of companies which flew the airlifts readily agreed that the financial arrangements offered for participation in the operations made the original challenge well worth accepting," journalist Ernie Hemphill explained. "But for the farsighted, the opportunity evidently went beyond that of immediate financial gain." Defence construction offered "an opportunity to test and prove air transport as the avenue for full scale development of Northern Canada's much touted industrial potential."²¹

The 1955 DEW Line Agreement promise notwithstanding,²² for over a year Robertson worried that "Canadian carriers will score almost no business" because their inclusion in the annual airlift was not explicitly stated in American drafts of the DEW Line Logistics plan.²³ Thankfully, the Americans eventually committed to utilize Canadian carriers to their full capabilities for **all** airlifts. In addition, the logistics plan promised that "decisions as to the use of transportation services within Canada ... will be made by the responsible United States authorities and the operating contractor in consultation with the Canadian Department of Transport

and Air Transport Board.”²⁴ In this sense, the DEW Line airlift would project Canadian sovereignty.

In early 1955, officials with the RCAF, DoT, and ATB discussed plans with commercial carriers to ensure that Canadian companies could provide the necessary services to complete the herculean task. The seventeen Canadian “A”-class operators (those carriers licensed by the ATB to fly aircraft heavier than 18,000 pounds [8,165 kg]) were grouped under three prime contractors – Canadian Pacific Airlines (CPA), Associated Airways Limited, and MCA – for the main airlift, while WEC would directly contract with air carriers for special projects. (Spartan Airways was the first beneficiary, receiving a \$600,000 contract to photo survey the line and transport the ground survey party.) Canadian companies were told to work through liaison agents (C.F. Burke for MCA and T.P. Fox for Associated and CPA), who in turn would contact Wing Commander W.B.N. Millar of the RCAF to coordinate the Canadian contributions.²⁵

The RCAF’s direct contribution to the “largest cargo airlift in the history of Canadian aviation”²⁶ was modest. It appointed a representative to the WEC’s DEW Project Office in New York to monitor the undertaking, protect RCAF interests, and keep Air Force Headquarters (AFHQ) updated on developments. Headquarters set up a DEW Monitoring Committee, the chairman of which sat on the federal government’s DEW Coordinating Committee. Despite the Canadian government’s commitment to focus its resources on the Mid-Canada Line, not the DEW Line, it did recognize the need to support the civilian airlift. During the construction phase, RCAF policy was to assist the civilian air carriers and USAF tactical air command as much as it could without impairing RCAF activities or commitments. This included beacons and other navigation aids for safety, communications facilities, and “administrative machinery for coordinating northern air transportation.”²⁷ It also supplied fuel to the carriers when critical supply issues emerged, particularly at Churchill. “The RCAF played little part in the actual freight lift, though civilian operators pay high tribute to the services it did provide,” a reporter noted as the first stage in the airlift wound to a close in mid-1955. “These included landing facilities at the ‘base’ end, tower control operators, coordination, and a mass of expert knowledge.”²⁸ The RCAF provided hangar space at the Edmonton and Mont-Joli airports; accommodations and hangars at Fort Nelson, Coral Harbour, and Churchill; and aviation fuel at various northern airfields. It also helped with weather forecasting and loaned equipment, including flying clothing, heaters, and a ski-wheel installation.²⁹ In practical terms, however, the DEW Line airlift would be

a civilian enterprise, supported by large USAF aircraft (such as C-124 Globemasters) for oversized items such as twenty-one-ton (19 MT) bulldozers and other heavy equipment.³⁰

The public learned about the role of the civilian contractors months before the final DEW Line agreement with the Americans became public. "Two Canadian construction companies are now leading the assault on the Arctic which dwarfs anything ever before attempted in the Canadian North," journalist Michael Barkway informed readers of the *Financial Post* on 12 February 1955. "Stations will be installed in regions where nothing more complex than a dog-team has ever penetrated, and on sites which are completely unknown." Canadian air carriers were acquiring "big multi-engined freight planes" and agreed to pool resources to fulfill the "mammoth air lift" requirements of the line. The USAF would play a supplemental role, as would the navy in the heavy sealift. The key challenge, readers learned, would be logistics:

Most immediate problem is to move in the mass of materials and equipment which will be needed for this unprecedented construction effort. The open season for supply by sea is only a few weeks in high summer, and the air lift has to be concentrated in the months before break-up.

Thousands of tons have to be air-lifted in the next few months, and Canadian air-carriers are preparing to take the greater part of it. Under the supervision of Western Electric Co., the two Canadian prime contractors will each let "air-lift subcontracts." Other carriers with suitable equipment will then back up the contractor.³¹

For the western section, Northern Construction Company awarded contracts to Canadian Pacific Airlines and to Associated Airways of Edmonton. For the eastern section, Foundation Company awarded the contract to MCA of Charlottetown. Several other western air carriers were expected to join in, and "British Yorks and some U.S. C46s will be added to Canadian fleets to carry the heavy traffic promised." Maritime Central Airways had already begun advertising for "qualified pilots experienced on medium and heavy multi-engined aircraft."³²

Ottawa officials hoped that the arrangements would benefit Canadian commercial operators, but by the summer of 1955, critics began to suggest that Canada's class "A" carriers were failing to meet their commitments and that U.S. airlines had to be called in to help them out. Over the previous six months, an editorial entitled "Canada's Bungled Airlift" noted, Canadian officials had predicted that the Canadian part of the airlift "would be gigantic – the most stupendous thing of its kind this

country had ever undertaken." Although only equipped at the onset with a handful of small aircraft, promoters had promised that Canada's civilian "northern air fleets" would acquire multi-engined aircraft, providing "a tremendous shot in the arm for air cargo development in this country" once the DEW Line lift ended. Critics argued that this did not transpire because

some managed to scrape up a modest number of obsolete or inadequate aircraft which, while being twin-engined or four-engined, could not be described as "multi-engined equipment" by a modern classification. That was as far as they could or would go.

Needing more capacity, many hungry carriers secured a great proportion of the aircraft they required by the simple expedient of sub-contracting to American carriers. The United States airlift pay is so profitable, moreover, that both parties to such an arrangement can make a pot of money – the American carrier by doing the actual work; the Canadian carrier merely by letting the sub-contract, under the airlift priority it enjoys in virtue of holding a Canadian class "A" certificate.³³

Notions that the Canadian carriers would modernize and professionalize were misleading, the *Edmonton Journal* editorialized. Most Canadian companies operated their newly purchased aircraft in the bush style of the thirties, with disastrous results. "For weeks at a time, the Canadian carriers with these planes floundered around in the mud of primitive northern airstrips," the editor alleged, "from which they insisted on trying to operate in the Arctic, or were grounded by the exhaustion of the limited aviation fuel at their chosen northern bases."³⁴

When it was over, the *Edmonton Journal* predicted that Canadian commercial aviation would be left without "a single *worthwhile* addition to their 'fleets.'"³⁵ After the construction phase was completed, the editor expected that the "essential and high-priority" military work would continue to be completed by American planes and crews. The Canadian commercial transport industry would hardly benefit. "The Americans are in no way at fault; indeed, they have been extraordinarily generous. Canada is simply seeing the results of its aviation policy and of the airlift arrangements negotiated by its Air Transport Board, on instructions from the government in Ottawa, and at the request of the Air Industries and Transport Association of Canada." Accordingly, the editor noted, "the government owes the public an explanation of this bungling – and a real one."³⁶

That fall, the government and some industry officials painted a more optimistic portrait. On 7 November 1955, Transport Minister George Marler told a luncheon meeting of the Air Industries and Transport Association (AITA) that Canadian carriers had flown more than 17,000 tons (15,422 MT) to supply the DEW Line, and that 1955 would be a record year. Fox, the president of the AITA, emphasized that radar building had provided more impetus to Canadian aviation. "Canada's non-scheduled transport has increased from a handful of freighters to over a dozen four-engined aircraft and over thirty twin-engined machines, with a consequent enlargement of personnel and facilities," he touted. "The immediate rush is over, but the more steady supply phase is in the offing." He predicted that this would strengthen the civil network of services, reduce transportation costs (once facilities and overhead costs were written off), and stabilize demand for auxiliary service and equipment suppliers to the commercial aviation industry.³⁷

Not every industry stakeholder was convinced that the DEW airlift was advancing Canadian aviation. Instead of providing Canada with a large air transport reserve, the head of the Canadian Air Lines Pilots Association's policy committee said, "[W]e'll have 10 new millionaires and the biggest collection of junk ever assembled on a Canadian airfield." He accused the AITA of choosing "the 'grave train' over the future good of Canadian aviation," while the U.S. bankrolled "a laboratory to solve the problems of air freight in the north."³⁸ The U.S. offered eighty cents a ton mile to fly supplies to the DEW Line, compared to the U.S. air freight rate of eighteen cents a ton mile. In turn, the AITA spent hundreds of thousands of dollars buying "a hodge-podge of obsolescent York transports and C-46s." When the airlift fell behind, two squadrons of massive USAF C-124s had to move in to carry the freight that should have been dealt with by Canadian aircrews. Had the Canadian government asked the Pilots Association for fifty crews to man fifty DC-4s, "we could have handled all the freight thrown at us," the policy chairman boasted.

Instead, we end up mired in the mud ... while the C-124s fly back and forth. Instead of using our know-how we have a bunch of U.S. pilots taking up residence in Edmonton and the 'reserve' aircraft are Americans no matter how they are camouflaged. Canadian aviation has been retarded instead of advanced.³⁹

The AITA retorted that the Pilots Association's accusations were "unfounded and untrue." Fox, the retiring president, explained that "when the DEW Line was initiated, there was a demand for immediate action on the part of the carriers, and sufficient suitable equipment for the long haul to Arctic areas was not available." The fleet of aircraft amassed

to mount the airlift was not ideal, but he insisted that it included modern aircraft and was "the best that could be obtained on such short notice." All told, he believed that "the Canadian carriers in the face of tremendous physical difficulties have done a very commendable job on the DEW line."⁴⁰ More gruffly, Donald McVicar, owner of World-Wide Airways (WWA), questioned "where in hell could they get 50 DC4s and the crews to man them to finish the job in time to convince the Russians they'd better not bring their damn atom bombers over us?"⁴¹

The ongoing debate resumed the following year, when the April 1956 issue of the *Canadian Air Line Pilot* (the official publication of the Pilots Association) said that Canada's DEW Line record was "deplorable" and that the government and carriers "muffed" the opportunity to properly study the economic problems of air freighting. Transport officials rejected these charges and insisted that the DEW Line airlift was a tremendous boost to the industry. Air tonnage grew by more than 300 percent between 1946 and 1954. Furthermore, high-density flights in the U.S. bore no resemblance to the movement of freight from places like Mont-Joli and Knob Lake to the Arctic. "Freight movements in the North are sporadic, airstrips cannot be compared to city airports, aids to navigation are fewer in the North, ground maintenance is more difficult, and winter flying has to be utilized to take advantage of ice strip landing fields," Irwin Shulman reported in the *Montreal Star*. "In spite of this, 52,960,000 ton-miles were flown in 1955."⁴² Canadian carriers had not indulged in a "wild scramble" for equipment and personnel, had made clear from the beginning that the USAF would move large special equipment, and the eighty-cents-a-ton-mile rate was for a one-way haul, with the planes having to return empty. Furthermore, any suggestion that new and modern transport should have been acquired was nonsensical, given that delivery of new, large planes took two to three years. Was the Pilots Association simply distorting the facts to try to obtain a share of the DEW Line work?⁴³

Even if self-interests were in play, this debate reflected the complex reality that characterized the airlift. Canadian commercial airlift capabilities did improve because of DEW Line business. Companies such as PWA and Transair developed significant northern capabilities. The statements of government officials, however, trumpeted Canadian successes but concealed limitations. Americans ultimately decided to continue to employ commercial aircraft on a charter rather than unit toll basis (and thereby frustrate the vision of Canadians such as Robertson). Americans also determined which Canadian companies received transportation subcontracts, the length of their contracts, as well as the Canadian hubs that supported the airlift.

Sovereignty for Hire

In reality, Canadian commercial carriers dominated the DEW Line airlifts, and the Canadian north benefitted from the industry's growth and professionalization. The Canadian firms in the region were formerly bush flying firms, operating small fleets of single- or two-engined aircraft, and were only beginning to develop into credible airlines by the early 1950s. The promise of DEW Line work provided these small companies with the credibility to borrow huge sums and build sizeable fleets of aircraft. Some companies, such as Associated Airways, purchased unreliable Avro Yorks and suffered heavy losses. Many companies, such as WWA and MCA, purchased more reliable two-engined aircraft such as DC-3s and C-46s as well as four-engined aircraft such as DC-4s for use in Canada's north. These aircraft were flown night and day. "It was not uncommon for a pilot to be back at base after having flown 95 hours in ten days," aviation historian Peter Pigott notes. "Life was flying, sleeping – and more flying."⁴⁴ This injection of American dollars into the Canadian industry dwarfed the industry's old environment. Jim Spilsbury, founder of the previously struggling Queen Charlotte Airlines (QCA), writes that DEW Line work

was bringing in more money than we'd ever dreamed of, quite literally. I just couldn't *believe* the revenue figures we were chalking up. In 1955 I remember looking at an interim balance sheet ... [with] a projected gross [profit] for the year of eleven million [dollars]. This was over five times what we'd earned in any previous year... It was just a matter of time before we had the airline back in the black. With cash in the bank and our new operational prowess, things were suddenly starting to brighten up. We would soon be in a position to add some new equipment and expand our routes.⁴⁵

Growth also took the form of consolidation. Pacific Western Airlines was able to buy out Spilsbury's company as well as Associated Airways in 1955 and thereby was able to reinforce its position within the Arctic for several years.⁴⁶ Moreover, the quality of services provided by Canadian carriers also improved. "[A]s time went on, it was evident that through the combined efforts of everyone, the company [Pacific Western Airlines] was making the transition from bush flying to airline operations. There were still mistakes being made but, on the whole, we were improving."⁴⁷

Despite this dramatic expansion, American aircraft were also employed when Canadian companies lacked the necessary capability. For instance, in 1956, due to a shortage of C-47s and unfavourable weather, Canadian companies lacked sufficient aircraft capable of landing large

loads at small airstrips. The USAF therefore provided several C-123 Provider aircraft to fill the gap.⁴⁸ Canadian firms also subcontracted American commercial carriers to fill gaps in Canadian airlift capabilities. In the first year, Canadian regulations were limited, and many Canadian companies subcontracted American companies to operate in Canada under their names in return for a share of the profits. These close corporate relationships created widespread concerns that Canadian companies were becoming mere fronts to facilitate American operations. For instance, the men and aircraft for QCA's 1955 operations were entirely supplied by the California-based company Flying Tiger Line. The Canadian DoT, however, quickly tightened its regulations to encourage real growth within the Canadian airlift industry while still allowing for legitimate American commercial participation when absolutely necessary.⁴⁹ For example, in 1956, MCA subcontracted work for a single aircraft from the United States Overseas Airlines. Their contract recognized that American carriers "will only be employed when the Canadian carriers are not capable of handling the work and that as soon as the need for their services in Canada is ended, their aircraft will be returned to their own Country."⁵⁰ The contract also specified that American aircraft were to use Canadian facilities when in Canada (thereby creating more Canadian jobs), respect Canadian laws, and work under the operational control of MCA.⁵¹ By May of that year, many American aircraft were withdrawn, and MCA notified its Canadian subcontractors that the airlift was American-free by 19 June.⁵² So long as governmental regulations were properly managed, eager Canadian carriers proved to be effective transmitters of Canadian sovereignty.

Although such American companies were employed, they did not jeopardize Canadian participation. Sometimes, the ATB determined that Canadian carrier capabilities were under-utilized and rejected the requests of Canadian carriers to subcontract work to American firms.⁵³ More often, Canadian companies familiarized themselves with the rules that dictated the tender process, and each fought to ensure that their companies received as much DEW Line business as possible. Knowing that Canadian firms could only subcontract American companies if **all** Canadian carriers were unable to fulfill the resupply schedule, they objected to any American competition if their aircraft were less than fully utilized. Although many companies complained about the presence of American aircraft, the most vocal was WWA, owned by McVicar. On 14 March 1957, McVicar complained that an American-owned Zantop Airlines aircraft was being used by MCA "WHILE OUR CANADIAN OWNED AIRCRAFT ARE IDLE."⁵⁴ That July, WWA complained that seven of its aircraft were idle and requested that "NO FURTHER

IMPORTATION" of American aircraft be permitted.⁵⁵ In this case, the ATB assured McVicar that "the Board does not permit the entry of U.S. aircraft until satisfied that available Canadian aircraft of the type required is utilized."⁵⁶ Undeterred, McVicar complained later that same month that Canadian Dorval Air was operating an American aircraft while WWA aircraft were unused.⁵⁷ The ATB investigated this later case, and it turned out that the aircraft was only chartered as backup and therefore did not contravene the DEW Line agreement. Still convinced that something clandestine was afoot, WWA "respectfully request[ed] again that the [Air Transport] Board take appropriate action to have this aircraft operate within the confines of its temporary licenses here in Canada."⁵⁸

Such complaints generally lacked validity and were likely false accusations based on impressions and rumours designed to generate additional work for the accused. On at least one occasion, however, the allegations seem to have been valid. Canadian-based Wheeler Airlines improperly acquired two aircraft and crews from the American company Riddle Airlines Incorporated. According to McVicar, in return for 15 percent of the gross profits, American companies like Riddle provided their aircraft and crews to Canadian companies. "Then to prove what some call the 'Canadian content' of the aircraft they'd give me a dated, signed bill of sale and I was supposed to give them an undated one back."⁵⁹ In this case, the ATB investigated the matter more thoroughly, but its findings are not part of the archival record.⁶⁰ The fierce competition for DEW Line work generated considerable jealousy that caused Canadian carriers to behave as non-appointed watchdogs for the Canadian government by reporting any violations, and deterred any consistent illegal use of American aircraft at the expense of Canadian capabilities.

On only one other occasion does there appear to have been any infringement of the DEW Line agreement. In 1958, the Federal Electric Company (FEC) chartered American aircraft on a case-by-case basis to satisfy emergency flights of materiel to DEW Line sites so that uninterrupted construction could continue.⁶¹ When the ATB questioned the use of American aircraft, the USAF insisted that the FEC had behaved properly and pointed out that Canadian carriers were moving more freight than ever before, and that while Canadian companies would continue to be used to the fullest extent possible, American companies could still be required in future emergencies.⁶² In response, the ATB provided a list of Canadian carriers that it believed could have carried out the work and again asked that past precedents be followed.⁶³ Whether the ATB was unconvinced or merely posturing is unclear. Regardless, it seems the Americans got the hint: the archival record contains no further

examples of American emergency freight flights. Canadian companies continued to dominate the airlift and thereby fortified Canada's presence in its Arctic. Moreover, though reminders were required on occasion, American officials respected the wishes and jurisdiction of the ATB.

The Limits of Canadian Influence

The Canadian government did not, of course, have ultimate control of the DEW Line airlift. Ralph Allen, the editor of *Maclean's* magazine, wrote an oft-cited article posing the core question: "Will the DEW line Cost Canada its Northland?" He thought it would. "It is the charter under which a tenth of Canada may very well become the world's most northerly banana republic," Allen asserted. "For a sum of money that has been officially estimated at four hundred million dollars we have at least temporarily traded off our whole northern frontier. In law we still own this northern frontier. In fact we do not."⁶⁴ In his view, we did not simply allow our American allies to take control, but insisted that they do so. This was not a passive loss of sovereignty but the Canadian government's decision to "thrust it on a friend who did not really want it but who, having been forced to take it, must inevitably use it in ways that will impair our friendship." For roughly the amount of the tobacco taxes that Canadians would pay between 1954 and 1957, the country "handed the expense and operation of this radar network – perhaps obsolete already – to the United States," Allen lamented. Canada's "paper" agreements were insufficient guarantors of Canadian sovereignty "on the ground."⁶⁵

In practice, the Americans did not run roughshod over Canadian wishes and bilateral agreements, and they worked hard to accommodate Canadian interests. There were, however, limits to American goodwill. For example, the United States' financial control of the airlift limited Canada's ability to influence operations. The ATB reviewed all tenders from Canadian companies, approved those that possessed the appropriate licences and capabilities, and then passed them to the Americans. Although American governmental and corporate officials consulted Canadian departments throughout the tendering process (and there is no evidence of Americans ignoring Canadian suggestions), the FEC decided which company received the lateral transportation contract, and the USAF selected the vertical airlift subcontractor.⁶⁶ This reliance on American finances vis-à-vis the DEW Line airlift occasionally led to decisions that adversely affected some Canadians. The Canadian government may have preferred different actions, but it recognized that since the American decisions were reasonable expressions of their own interests, and since Canadian sovereignty was not threatened, it was unreasonable to object.

The Canadian air carriers that benefitted from DEW Line work did extend their services into the Canadian North by performing additional non-DEW Line flights. The USAF worked to ensure “that the airlift pattern will coincide with Canadian desires”⁶⁷ and promised that the FEC would direct its vertical airlift from Canadian airfields (later Edmonton and Montreal). As a result, considerable Canadian, rather than American, goods were purchased and shipped to DEW Line stations in Canada using Canadian air carriers.⁶⁸ Robertson, however, was unsatisfied with this limited expansion. Thus, in July 1958, he asked the ATB to “re-examine the contracts ... between the Federal Electric Company and the air carriers to ensure that they allow any space in the aircraft to be used for common carriage” because “the integration of D.E.W. with other traffic requirements in the north would greatly benefit the development of the north.”⁶⁹ Even in 1961, when the Department of National Defence (DND) began to doubt the viability of such a plan due to the alleged incompatibility of military-civilian interests, and the DoT believed the public had sufficient access under the existing system, DNANR still hoped that an integrated system was possible.⁷⁰

The Americans were reluctant to accommodate the Canadian vision because they believed that it would compromise the responsiveness of Canadian carriers to DEW Line requirements. Both the USAF and FEC insisted on contracts that chartered aircraft. The FEC preferred this method because it “did not envisage too much available space for commercial purposes and contemplated that this would be restricted to use by government departments such as Northern Affairs.”⁷¹ While the USAF was interested in cutting costs, it similarly doubted “that the unit toll basis of charge ... will ... enable the degree of control that is necessary to insure reliability and support for the primary DEW Line mission.”⁷²

Alternatively, DNANR increasingly pushed for a unit-toll arrangement whereby the Canadian government, the private sector, or private citizens could purchase excess capacity on DEW Line flights and access areas of the north that would have otherwise generated insufficient demand to legitimize a flight. By 1960, Nordair also picked up on the idea to try lowering its rates and become the major vertical airlift subcontractor. It hoped to add commercial flights to Frobisher and Cape Dyer and “thereby enable us [Nordair] to increase the frequency of our services available to the public in general and to reduce our rates for all people using it.”⁷³ Maintaining its desire for uncompromised control, the USAF rejected this scheme and continued to insist on charter-based contracts. Thus, by 1961, Canada still lacked the integrated system that could have maximized access to the North at the lowest possible prices.⁷⁴ Given the

American willingness to pay for a less cost-efficient system, and since these decisions still respected the Canadian government's jurisdiction and utilized Canadian carriers, the Canadian government had little choice but to accept the status quo.

Other aspects of American preferences concerning Canadian DEW Line airlift contracts were also beyond Canada's control. The Americans insisted that only large companies could bid on DEW Line transportation subcontracts. This resulted in an umbrella-like contract structure wherein the winning Canadian company, itself too small to fulfill the contract's full obligations, would subcontract to other Canadian and even American companies. Although the Canadian government recognized that winning DEW Line contracts put these companies "in a very strong position to the point where other operators were discouraged from extending into the far North either charter or regular unit toll services," there was little it could do.⁷⁵ Some Canadian companies became dependent on DEW Line work due to the relatively small scale of alternative contracts in the region. According to air carriers that were not awarded DEW Line contracts, these favoured companies also used their status to access facilities that were otherwise unavailable.⁷⁶ Other owners insisted that their companies remained competitive, but that the political connections of larger firms such as Dorval Air Transport and Wheeler Airlines (who combined to form Wal-Dat to receive the initial resupply subcontracts for the eastern section of the DEW Line) resulted in favouritism. "In losing the DEWline [*sic*] contract you might say that instead of spending so much time in the Arctic I ought to have been in Ottawa kissing asses and greasing palms," McVicar noted sarcastically.⁷⁷ As time passed, already large Canadian companies grew larger; as a result, smaller companies such as WWA found themselves out of work. Whether these smaller companies were cost effective or not remains unclear. That these contracting decisions were, at the end of the day, the responsibility of Americans should not obscure the fact that the principles of the DEW Line agreements remained in place: Canadian carriers continued to dominate the airlift, and the Canadian government was consulted throughout the airlift's duration.

The repercussions of these decisions were not limited to the Canadian aviation industry. Some Canadian towns, such as Mont-Joli, became dependent on DEW Line work. During the construction phase, many Canadian carriers, such as WWA, operated from Mont-Joli, generating considerable prosperity for the town in the process. With the construction phase complete, the resupply for the DEW Line's eastern section was centralized in Montreal. Both the Junior and Senior Chambers of Commerce in Mont-Joli sent petitions to Ottawa requesting that the

federal government “study ... [the] possibilities to establish new air lift at Mont Joli” since “Mont Joli airport was giving employment to a great part of [the] population of Mont Joli and the surrounding” area.⁷⁸ Aside from a letter from the prime minister’s office acknowledging the problem, nothing resulted.⁷⁹ The greater administrative efficiency that resulted from centralized operations trumped local concerns.

The one-year duration of airlift contracts also created uncertainty for Canadian carriers and the federal government. The Canadian minister of transport, George Hees, asked Major General J.C. Jensen, Chief of the USAF Central Coordinating Staff, whether contracts of two or three years could be awarded. Hees believed longer contracts would lead to better service, lower rates, and prevent disruptions during transition periods between contractors. He also expressed concern about the destabilizing effects for Canada’s airfreight industry caused by changing subcontractors.⁸⁰ Although Jensen acknowledged the validity of Hees’ arguments, he explained that the “funds which are provided to the USAF by Congress for the procurement of airlift services are available for obligation only in the fiscal year for which appropriated and limited to the procurement of services and supplies to meet the bona fide needs of that fiscal year.”⁸¹ Both parties agreed that longer contracts were desirable, but they were impossible. This American idiosyncrasy influenced Canada’s airfreight industry in ways that were contrary to what both Canadian and American officials preferred. Nevertheless, the American military and private contractors did all that they could to accommodate Canadian preferences and requirements. The airlift continued to use Canadian firms to their full capacity, and Canada’s northern transportation infrastructure did grow because of DEW Line work (albeit much more conservatively than DNANR had hoped). While Canada was unable to exploit the fullest potential of the DEW Line’s airlift, it nonetheless realized considerable gains.

The United States did not get everything its way. It continued to pay the higher freight rates of Canadian companies instead of insisting on American companies. “Perhaps the most ethically questionable position from the American point of view was the implicit belief on the part of Canadian negotiators that United States defense purchases were to be used to subsidize Canada’s defense related industries,” historian Michael Evans observed. Despite these concerns about “financial profiteering” from a system paid for by American taxpayers, Canadian industry reaped substantial benefits.⁸² As early as 1955, the rates of Canadian carriers were considered “on the excessive side,” especially given the airstrip improvements that eased transportation since 1954.⁸³ Indeed, Canadian

carriers initially refused to consider reducing their rates. The following year, the president of Yellow Transportation Company Limited described the transportation rates as “whoppers.”⁸⁴ Although some reductions were realized, rates remained high. By 1960, “the American authorities ... [were still] spending at least twice as much as they need[ed] on the transportation of DEW Line supplies” to certain sections of the line.⁸⁵ Even Deputy Minister of Transport J.R. Baldwin conceded that if the USAF wanted to take a firm stand I think it would be very difficult to enforce the use of Canadian carriers [given the freight rates the Americans were paying]. It is therefore essential that the U.S. government be given the best economic treatment possible if we are to avoid placing it in a position where it insisted on using its own or Canadian military services instead of commercial services.⁸⁶

The Americans eventually took action. In the name of cost cutting, the annual vertical airlift was consolidated from Edmonton and Montreal into a single centralized operation out of Winnipeg (and Churchill). In 1960, the FEC and TransAir Limited each studied DEW Line operations and realized that its dual operations in Edmonton and Montreal resulted in significant duplication. The FEC estimated that it would save \$800,000 to \$1,000,000 per year by centralizing the DEW Line resupply in Manitoba. Priority goods would be flown out of Winnipeg, and bulk goods would be sent by rail to Churchill and then flown to DEW Line sites. The new plan would not, however, compromise Canadian participation: “under the new plan the volume of purchasing in Canada would not decrease, nor would there be any decrease in the number of Canadians employed on the line.”⁸⁷ Manitoba’s Minister of Industry and Commerce Gurney Evans was excited by the opportunities for the province’s suppliers and transportation facilities.⁸⁸ As per the DEW Line agreement of 1955, Canadian carriers would continue to be used “to the fullest extent practicable.” Given this continued interest in satisfying Canadian demands, G.Y. Loughead, Superintendent for Finance in DND, commented that given the “substantial administrative savings,” this was “the sort of thing that could be expected to result after the experience gained during the course of operating the line, and it did not reflect any changes with which the Canadian departments could take exception.”⁸⁹

The relocation also favoured some companies at the expense of others. TransAir, based in Winnipeg and a past advocate of consolidation, received the 1961 vertical airlift contract. The Canadian government regretted the “heavy economic impact” on previous subcontractors but considered the change reasonable.⁹⁰ The USAF also found it “regrettable

that their [Canadian carriers'] operations have been so greatly dependent upon DEW airlift" and attempted to alleviate consolidation's impact on Canada's airfreight industry by offering both of the previous vertical airlift subcontractors, Nordair and Pacific Western Airlines, subcontracts for the lateral airlift.⁹¹ Again, the United States did its best to accommodate Canadian needs without unduly sacrificing its own interests.

Different American interests did not compromise Canadian sovereignty. At the time, Canadian bureaucrats and politicians recognized that America's financial stake in the program afforded it some level of decision-making power. Conversely, American officials were careful to accommodate Canadian wishes whenever possible, not to overstep reasonable limits, and to avoid provoking a sovereignty crisis. In short, because the DEW Line was in the interests of both countries, they sought ways to satisfy the other's sometimes contrary needs and preferences.

Conclusions

Scholars who remain fixated on American intentions or threats to Canadian sovereignty are misplaced in pointing to the DEW Line experience. DND legal adviser Eric Wang visited the line in May 1969 and concluded that Canadian sovereignty had been strengthened rather than weakened as a result of the DEW Line's existence. Canadian journalists' "masochistic pleasure" in alleging that "the higher degree of financial, administrative and military influence and control exercised by U.S. authorities has in practice reduced Canadian powers to influence and control activities on the Line" was misleading.⁹² Wang concluded that the Canadian and American interests in the radar network were compatible and mutually beneficial. In his assessment, anecdotal evidence of sovereignty encroaches and bilateral friction had been overblown.

American policy towards the DEW Line appears to be based on a desire to accommodate themselves as harmoniously and as constructively as possible into the Canadian setting in which they have to operate. This policy is firmly founded in their own self-interest in maintaining the highest level of Canadian cooperation and support for joint North American defense programs. Perhaps it may be possible to detect some sour notes by diligent searching. I wonder, however, whether any such problems would weigh very heavily against the important benefits which accrue to Canada from this project in the development of the North, not to speak of its essential contribution to our security. Indeed, we might be tempted to congratulate ourselves ... for enjoying a "free ride" at least in this

area of our defense activities on our own soil, without any unpleasant side effects.⁹³

Canadian diplomats and defence officials did not sell out vital national interests – they secured them through quiet diplomacy, a functional approach, and a process that was generally “cordial, respectful, and mutually beneficial.”⁹⁴

Despite the American influence and limited participation of Canadian government assets (such as the RCAF) in the DEW Line airlift, sovereignty was protected. Canadian civilian air carriers comprised a major portion of the airlift, and their contributions were highly valued by American officials.⁹⁵ While Canada’s official influence was limited in the actual construction of the radar network and operation of the airlift, the simple reality that the U.S. was paying for the DEW Line required Canadian adaptation. Ottawa could not change the length of contracts, the employment of aircraft on a charter rather than unit toll basis, or the selection of large Canadian companies at the expense of their smaller counterparts. This, however, did not compromise Canadian sovereignty. Despite their critics, Canadian commercial carriers continued to dominate the consolidated DEW Line airlift and to expand their operations in the Arctic. Moreover, the ATB contributed to the tendering process and ensured that all carriers abided by Canadian laws. The U.S. held the purse strings, but Canada benefitted. “If you want to write a story about Americans taking over the Canadian Arctic, you have come to the wrong place,” a Canadian construction boss noted in April 1956. “Not only are we holding onto our Arctic, but we’re opening up in two years what would have taken centuries. We’re learning more about Arctic flying than anybody in the world.”⁹⁶ Rhetorical excess aside, Canadian contributions to the DEW Line expanded not only its commercial air capacity but its Arctic domain awareness more generally.

In the midst of another round of concerns regarding Arctic sovereignty and security, the federal government in general – and the Canadian Forces in particular – is looking to the private sector to leverage its capabilities in demonstrating Canada’s Arctic presence. The contracting of civilian air assets (fixed wing and rotary) to support Operation *Nunaliut* north of Ellesmere Island in April 2010 is a prime example. This is hardly unprecedented, and present-day decision makers should be aware of the lessons learned from the DEW Line experience. For example, past practices suggest that long- rather than short-term contracts are more conducive to stable and cost-efficient transportation infrastructure. Crash programs are expensive and force companies to adopt half measures to meet requirements in an ad hoc fashion. Furthermore, the contract

structure itself is fundamental to the type of transportation infrastructure that results. When government regulations concerning American carriers were less stringent, Canadian carriers exploited the gap for their own financial gain. Once these gaps were closed, different companies with different strengths came to the forefront. In the case of the DEW Line, large companies were consistently selected, in part because their size made coordinating the large airlift more convenient. The result, however, was the elimination of smaller airlines from the Arctic region. Indeed, even southern Canadian towns such as Mont-Joli were dramatically affected by DEW Line business. While it is difficult to determine whether utilizing larger or smaller carriers was ultimately more beneficial to Canada's Arctic transportation infrastructure, it is important to acknowledge the costs to both the aviation industry and towns reliant on airlift contracts. Furthermore, operating regulations need to be clearly communicated and enforced to ensure a fair economic environment.

On a more general level, the DEW Line experience reveals how commercial carriers, politicians, journalists, and scholars are susceptible to a civilian form of "mission creep." Once part of the airlift was Canadianized, southern Canadian commentators increasingly expected that Canadian crews and aircraft should conduct the entire airlift. Although the original intention may have been to develop and use Canadian assets where practical, this changed to "Canada only" expectations that may have been unreasonable and unfeasible. Accordingly, another lesson learned suggests that, where possible, the federal government and the military should communicate their expectations concerning future operations clearly, early, and based on predefined goals. Finally, and of continuing relevance today, government departments need to communicate their needs and capabilities so that a coherent, sustainable Arctic policy can be implemented. A proactive strategy will integrate civilian and military assets to achieve national aims and will be informed by past experiences as well as anticipation about the future.

Notes

¹ Morris Zaslow, *The Northward Expansion of Canada, 1914–1967* (Toronto: McClelland and Stewart, 1988), 328.

² C.J. Marshall, "North America's Distant Early Warning Line," *Geographical Magazine* 29.12 (1957), 616.

³ *Ibid.*

-
- ⁴ "Basic Philosophy on the Operation of the DEW Line," c. 1955, Library and Archives Canada (LAC) Records Group (RG) 24 Acc. 1983-84/049 Box 105 File 096-100-80/9 Pt 4.
- ⁵ See <http://pubs.aina.ucalgary.ca/aina/DEWLineBib.pdf> (accessed 9 September 2010).
- ⁶ Jeffrey David Noakes, "Under the Radar: Defence Construction (1951) Limited and the Military Infrastructure in Canada, 1950-1965" (unpublished Ph.D. dissertation, Carleton University, 2005), 343-44; J.R. Baldwin, Memorandum for File – DEW Line Supply Figures, 5 October 1956, LAC RG 12 Vol 2407 File 14-13-9-1 Pt 5.
- ⁷ David Neufeld, Canadian Parks Service, "BAR-1 Distant Early Warning (DEW) Auxiliary Station, Komakuk Beach, Yukon Territory," Report on file at the Parks Canada Western Arctic Field Unit, Inuvik, NT, 16-17; Alexander W.G. Herd, "As Practicable: Canada-United States Continental Air Defense Cooperation 1953-1954" (M.A. thesis, Kansas State University, 2005), 92-93.
- ⁸ A rare exception is Noakes' doctoral dissertation examination of Defence Construction (1951) Limited, but his discussion of the DEW Line focuses on construction and equipment and provides little analysis of the airlift. Noakes, chapter 4.
- ⁹ Michael William Evans, "The Establishment of the Distant Early Warning Line, 1952-1957" (M.A. thesis, Bowling Green University, 1995), 72.
- ¹⁰ R.J. Sutherland, "Strategic Significance of the Canadian Arctic," in *The Arctic Frontier*, ed. Ronald St.J. MacDonald (Toronto: University of Toronto Press, 1966), 267.
- ¹¹ On the radar chains, see Joseph Jockel, *No Boundaries Upstairs: Canada, the United States and the Origins of North American Air Defence, 1945-1958* (Vancouver: UBC Press, 1987); Matthew Farish, "Strategic Environments: Militarism and the Contours of Cold War America" (unpublished Ph.D. dissertation, University of British Columbia, 2003); and Noakes, "Under the Radar."
- ¹² Memorandum from Minister of National Defence to Cabinet Defence Committee, 20 January 1955, *Documents on Canadian External Relations*, vol. 21 (1955), doc. 324.
- ¹³ *Ibid.*
- ¹⁴ National Security Council (NSC) 159/4, quoted in Evans, 61.
- ¹⁵ Herd, 86.
- ¹⁶ Marshall, 616-17.
- ¹⁷ In early 1955, he expressed strong desires for Canadian participation in the DEW Line's resupply. Robertson, "Appendix D," 23 February 1955, LAC RG 25 Vol 5926 File 50210-C-40 Pt 3.1.
- ¹⁸ Jackson to Miller, 30 August 1956, LAC RG 12 Vol 2407 File 14-13-9-1 Pt 5, 2; see also Robertson to Matthews, 27 September 1956, Directorate of History and Heritage (DHH) 77-576 File 21.
- ¹⁹ By this means, he hoped to better service places such as Knob Lake, Yellowknife, Norman Wells, Aklavik, and Frobisher Bay. *Ibid.*; Robertson to Baldwin, 22 June 1955, LAC RG 12 Vol 2406 File 14-13-9-1 Pt 2, 2.
- ²⁰ Baldwin to Miller, 31 August 1956, "Re: DEW Line Logistics Plan," LAC RG 12 Vol 2407 File 14-13-9-1 Pt 5, 2.
- ²¹ Ernie Hemphill, "Air Transport Crossroads," *Canadian Aviation* (June 1957), 41.
- ²² Statement of Conditions to Govern the Establishment of a Distant Early Warning System in Canadian Territory, Article 17, annex to Exchange of Notes (May 5, 1955) between Canada and the United States of America Governing the Establishment of a Distant Early Warning System in Canadian Territory, Canada, Treaty Series 1955, no. 8.
- ²³ Robertson to Miller, 23 March 1956, LAC RG 12 Vol 2407 File 14-13-9-1 Pt 4, 2; Logistic Plan: Land Based Segment," 1 December 1955, LAC RG 12 Vol 4238 File Logistics Plan – Land Based Segment – Dew Line, 11-12.

-
- ²⁴ "Logistic Plan: Land Based Segment," 4 January 1956, LAC RG 12 Vol 4238 File Logistics Plan – Land Based Segment – Dew Line, 16.
- ²⁵ Report of a Meeting on the Participation of Canadian Civil Air Carriers on the Airlift for the DEW Line held at AFHQ on Thursday, 27 January 1955, 1 February 1955, LAC RG 24 Acc. 1983-84/049 Box 955 File 530-100-80/9 Pt 1. On Spartan Air Services' contributions, see Larry Milberry, *Air Transport in Canada*, vol. 1 (Toronto: CANAV Books, 1997), 444-55.
- ²⁶ Director of Air Services to DRAE, DoT, 2 February 1955, LAC RG 12 Vol 2408 File 14-13-9-5 Pt 1.
- ²⁷ R.G. Robertson to J.R. Baldwin, 22 June 1955, LAC RG 25 Vol 5926 File 50210-C-40 Pt 4.2.
- ²⁸ Michael Barkway, "Here's a New Saga of North," *Financial Post*, 21 June 1955.
- ²⁹ Report of RCAF Activities in Connection with the Construction Phase of the Distant Early Warning Line, 7 March 1955, LAC RG 24 Acc. 1983-84/049 Box 105 File 096-101. Canadian civilian air carriers operated out of or staged through Edmonton, Fort Nelson, Norman Wells, Hay River, Yellowknife, Cambridge Bay, Coral Harbour, Mont-Joli, Churchill, Frobisher Bay, Knob Lake, and Fort Chimo.
- ³⁰ "Building the DEW Line," *Engineering and Contract Record* (June 1957), 62-63.
- ³¹ Michael Barkway, "Canada Gets Ready to Build Dew-Line," *Financial Post*, 12 February 1955.
- ³² *Ibid.*
- ³³ "Canada's Bungled Airlift," *Edmonton Journal*, 14 July 1955.
- ³⁴ *Ibid.*
- ³⁵ *Ibid.* (italics in original)
- ³⁶ *Ibid.*
- ³⁷ "17,000 Tons Flown to Arctic to Supply Canada's DEW Line," *Montreal Gazette*, 8 November 1955, 8.
- ³⁸ "Airplane Pilots Say Canada Falling Down on DEW Line," *Quebec Chronicle Telegraph*, 9 November 1955.
- ³⁹ *Ibid.*
- ⁴⁰ Fernand Renault, "Pilots Association's 'Collection of Junk' Assertion Labelled Unfounded, Untrue by Air Association," *Montreal Star*, 10 November 1955.
- ⁴¹ Donald M. McVicar, *Distant Early Warning* (Dorval: Ad Astra Books, 1992), 120.
- ⁴² Irwin Shulman, "Ottawa Defends DEW Airlift Record," *Montreal Star*, 31 May 1956.
- ⁴³ *Ibid.*
- ⁴⁴ Peter Pigott, *Wing Walkers: The Rise and Fall of Canada's Other Airline*, 2nd ed. (Madeira Park: Harbour Publishing, 2003), 203.
- ⁴⁵ Howard White and Jim Spilsbury, *The Accidental Airline: Spilsbury's QCA* (Madeira Park: Harbour Publishing, 1988), 237-38 (emphasis in original).
- ⁴⁶ Duncan D. McLaren, *Bush to Boardroom: A Personal View of Five Decades of Aviation History* (Winnipeg: Watson and Dwyer, 1992), 171.
- ⁴⁷ *Ibid.*, 173-74.
- ⁴⁸ The exact number is unclear. The possible number ranges from six to sixteen. Consult "Operations Order Number 18-56," 30 August 1956, DHH 92/1 File 18, 1; Devine to Deputy Minister, 12 October 1956, LAC RG 12 Vol 2407 File 14-13-9-1 Pt 5, 1.
- ⁴⁹ White and Spilsbury, 236; Belcher to Chairman, "Riddle Airlines, Inc. Prospectus involving aircraft operated by Wheeler Airlines Limited," 19 March 1957; Chairman to Minister of Transport, 2 April 1957, DHH 77/576 File 18 Pt 1.
- ⁵⁰ Contract between Maritime Central Airways and United States Overseas Airlines, 19 March 1956, DHH 77-576 File 18 Pt 2, 3.

⁵¹ Ibid., 4-5.

⁵² Lefrancois to Belcher, 2 May 1956, DHH 77-576 File 18 Pt 2; Lefrancois to Secretary (ATB), 19 July 1956, DHH 77-576 File 18 Pt 2.

⁵³ Belcher to McGrail, 21 February 1957, DHH 77-576 File 21.

⁵⁴ Note: the text from this quote is from a telegram and thus all uppercase in the original. McVicar to Belcher, 13 March 1957, DHH 77-576 File 18 Pt 1.

⁵⁵ Note: the text from this quote is from a telegram and thus all uppercase in the original. As quoted in Quirt to McVicar, 8 July 1957, DHH 77-576 File 34, 1.

⁵⁶ Ibid.

⁵⁷ McVicar to Secretary (ATB), 26 July 1957, DHH 77-576 File 34.

⁵⁸ McGrail to Secretary (ATB), "Re: Operation of American Licensed DC4 in Canada," DHH 77-576 File 34.

⁵⁹ McVicar, 53.

⁶⁰ Belcher to Chairman, "Riddle Airlines, Inc. Prospectus involving aircraft operated by Wheeler Airlines Limited," 19 March 1957; Chairman to Minister of Transport, 2 April 1957, DHH 77/576 File 18 Pt 1.

⁶¹ Quirt, 18 August 1958; Quirt, 8 September 1958, DHH 77-576 File 36.

⁶² Reynolds to Wiseman, "Dew Line Carriers, Special Requirements," 15 September 1958, DHH 77-576 File 36.

⁶³ Quirt to Wiseman, 1 October 1958, DHH 77-576 File 36.

⁶⁴ Ralph Allen, "Will DEWline Cost Canada its Northland?," *Maclean's*, 26 May 1956, 16-17, 68-72.

⁶⁵ Ibid. Contrast also Leslie Roberts' two articles: "The Great Assault on the Arctic," *Harper's Magazine* (July 1955), in which Roberts spoke glowingly about Canadian-American cooperation, and "Should We Bring Our NATO Troops Home?," *Saturday Night*, 29 October 1955, wherein he accused the Canadian government of failing to safeguard Canadian interests.

⁶⁶ Distant Early Warning Co-Ordinating Committee: Progress Report No. 9, 20 July 1956, LAC RG 12 Vol 2407 File 14-13-9-1 Pt 4, 2-3; Logistic Plan, Land-Based Segment, Distant Early Warning System (DEW Line), 1 December 1955, LAC RG 12 Vol 4238 File Logistics Plan – Land Based Segment, DEW Line; Loughhead to Quirt, 16 December 1958, DHH 77-576 File 21, 1; Quirt to Wiseman, "Re: Air Transportation Services by Canadian Air Carriers – Dew Line Resupply FY 1960," DHH 77-576 File 39 Pt 2, 2.

⁶⁷ Jensen to Chief of the Air Staff, 13 September 1956, LAC RG 25 Vol 5928 File 50210-C-40 Pt 8.

⁶⁸ For example, regular flights between Mont-Joli, Quebec, and Frobisher Bay were established. Robertson to Matthews, 27 September 1956, DHH 77-576 File 21, 1. Pacific Western Airlines also considered its flights to Cambridge Bay to be "in support of public interest" for civilian as well as military purposes. Davoud to Taylor, 19 May 1960, DHH 77-576 File 22, 1.

⁶⁹ Robertson to Matthews, 11 July 1958, DHH 77-576 File 21, 2.

⁷⁰ Distant Early Warning Coordinating Committee, "Minutes," 17 January 1961, LAC RG 24 Vol 21422 File 1855.5.1 Pt 1, 1-2.

⁷¹ Belcher to Loughhead, "Commercial Air Services into Frobisher," 17 June 1957, LAC RG 24 Acc 1983-84/049 Vol 955 File 530-80/9 Pt 1, 1.

⁷² Taylor to Davoud, 15 February 1960, DHH 55-576 File 22, 1.

⁷³ Lefrancois to Secretary (ATB), 15 March 1960, DHH 77-576 File 22, 2.

⁷⁴ As a result, for example, Pacific Western applied to the ATB to suspend operations out of Parry Point "on the grounds that the level of activity and the civilian population

do not merit service at the present time." Davoud to Taylor, 19 May 1960, DHH 77-576 File 22, 2.

⁷⁵ Baldwin to Deputy Ministers, Draft, n.d. (c. January 1960), DHH 77-576 File 51 Pt 1, 1.

⁷⁶ Lefrancois to Secretary (ATB), 15 March 1960, DHH 77-576 File 22, 3-4.

⁷⁷ McVicar, 178.

⁷⁸ Note: the text from this quote is from a telegram and thus all uppercase in the original. Mont Joli Junior Chamber of Commerce to Diefenbaker, 22 January 1958, LAC RG 25 Vol 5928 File 50210-C-40 Pt 10.

⁷⁹ Bedson to President, Senior Chamber of Commerce of Mont Joli, 27 January 1958, LAC RG 25 Vol 5928 File 50210-C-40 Pt 10.

⁸⁰ Hees to Jensen, 23 December 1958, DHH 77-576 File 36, 1.

⁸¹ Jensen to Hees, 12 February 1959, DHH 77-576 File 36.

⁸² Evans, 87-88.

⁸³ Lohman to Willamson, 15 November 1955, LAC RG 24 Acc 1983-84/216 Vol 3061 File 895-80/9 Pt 2, 1.

⁸⁴ Harcourt to Alexander, 8 March 1956, LAC RG 24 Acc 1983-84/216 Vol 3061 File 895-80/9 Pt 4.

⁸⁵ Turner to Davoud, 25 March 1960, DHH 77-576 File 22, 1.

⁸⁶ Baldwin to Davoud, 15 June 1960, DHH 77-576 File 22, 1.

⁸⁷ Loughead to Deputy Minister, "Re: DEW Line Administrative Organization in Canada and Vertical Aerial Re-Supply," 28 December 1960, LAC RG 24 Acc 1983-84/216 Vol 3061 File 895-80/9 Pt 2, 2 (emphasis in original); see also Raylor to Loughead, 11 January 1961, LAC RG 24 Vol 21422 File 1855.5.1 Pt 1.

⁸⁸ Evans to Balcer, 7 December 1960, LAC RG 24 Acc 1983-84/216 Vol 3061 File 895-80/9 Pt 2.

⁸⁹ Loughead to Brown, "Re: DEW Line Administrative Reorganization," 30 January 1961, LAC RG 24 Acc 1983-84/216 Vol 3061 File 895-80/9 Pt 2.

⁹⁰ Balcer to Paille, 14 April 1961, DHH 77-576 File 25.

⁹¹ Taylor to Davoud, 19 April 1961, DHH 77-576 File 25. PWA ultimately rejected this offer because of its minimal profits. Nordair seriously considered the offer and struggled to offer acceptable rates, but its final decision is unclear. Chairman (ATB) to Minister of Transport, "Re: Lateral DEW Resupply"; Harris to Davoud, 11 May 1961, DHH 77-576 File 25.

⁹² E.B. Wang, "The Dew Line and Canadian Sovereignty," 26 May 1969, LAC RG 25 File 27-10-2-2 Pt 1.

⁹³ Evans, 76.

⁹⁴ *Ibid.*

⁹⁵ In 1957, the Foundation Company of Canada praised MCA for its management of the Eastern Section airlift during the DEW Line's construction phase, emphasizing that "without your effort the building of the DEW Line would have been impossible." Shaw to Burke, 23 July 1957, DHH 77-576 File 18 Pt 1. In 1959, the Federal Electric Corporation was also impressed by "the calibre, attitude and zeal" of the personnel of Canada's Pacific Western Airlines. Sowell to Robbins, 27 February 1959, DHH 77-576 File 49.

⁹⁶ Douglas Leiterman, "Americans Take Back Seat In DEW Line Development," *Edmonton Journal*, 11 April 1956.



US Submarine Operations, 1958-1983. *Waldo K. Lyon Papers, US Navy, Naval Historical Center Operational Archives, Washington, DC, courtesy of Adam Lajeunesse.*

7

A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-86

Adam Lajeunesse*

In May 1986, three American nuclear attack submarines (SSNs) surfaced at the North Pole. Their mission was routine – weapons tests, environmental studies, and data collection – similar to dozens of operations that had come before. Politically, however, this operation attracted some unusual attention. Barely a year after USCGC *Polar Sea* had created a public uproar by transiting the Northwest Passage without Canadian permission, these boats resurrected the smouldering political issue of Canadian Arctic sovereignty. Specific information on their routes was not provided, but the fact that two of them had been deployed from the Atlantic led many to assume that they may have travelled through the waters of the Canadian Arctic Archipelago.¹

The question of American activity in Canada's Arctic waters had long been a sensitive subject. Yet, while the routes and activities of these boats have normally been classified, it had long been suspected that they were operating in secret throughout the Canadian north. These concerns date back to the 1960s, when such operations were known to have begun, and continued into the 1980s, when the increased strategic importance of the region brought the issue to the fore. Despite the close military relationship between the two countries, the continued American refusal to recognize Canada's maritime sovereignty in the region meant that any U.S. activity in the north was viewed with suspicion and concern by the Canadian public.

* Originally published in *Cold War History* 13, no. 4 (2013): 507-24.

This feeling was amply demonstrated in 1986 as opposition members in the House of Commons, the Canadian media, and the general public expressed their apprehension that the United States was secretly and regularly deploying its forces into the Arctic. It was assumed that there was little the Canadian government could do to control or monitor this activity and that Canadian sovereignty must be suffering accordingly. Eventually, this mounting public and political pressure forced the government of Brian Mulroney into something of a confession which implied that Canada did in fact have some knowledge of these transits.² Still, the ambiguity of this statement and the government's general stonewalling on the matter meant that few of these concerns were alleviated.

Experts on the subject have traditionally fallen in line with these suspicions and have questioned how much knowledge Mulroney and past Canadian governments really had about American operations. In 1987, John Honderich wrote that "to expect the United States to routinely inform Canada every time one of its submarines traverses Canadian water is to fail to understand how the US military works."³ That same year, Franklyn Griffiths hypothesized that one day the U.S. might be able to bring the log books of its secret submarine transits to the International Court of Justice (ICJ) as evidence that the passages of the Arctic Archipelago had long been used as an international waterway. In 1990, David Larson guessed that Canada might have been able to establish some form of secret agreement with the Americans, yet just as likely was the possibility that the transits were being made without permission.⁴ In 1998, Elizabeth Elliot-Meisel conjectured that Canada had no way of monitoring or stopping the transits of these boats.⁵ And, in one of the most recent major works on the subject, Shelagh Grant wrote in 2010 that the presence of these undetected submarines posed a danger to Canadian sovereignty, even if only a theoretical one.⁶

The purpose of this article is to challenge these assumptions and to present a far different interpretation of the Canadian-American defence relationship in the Cold War Arctic. In fact, from the 1960s to at least 1986 (the point at which all publicly available documentation ends), the American submarine program in Canada's northern waters appears to have been undertaken not as a secret assault on Canadian sovereignty but as a fully cooperative venture. During this period, the U.S. Navy did not use these waters as a regular patrol area, and, when it did, transits were normally conducted as some form of joint operation. The documents now available list only eight such voyages between 1960 and 1986,⁷ and it seems likely that Canada knew about each of these and concurred with

their taking place.⁸ This cooperation extended not only to submarine operations but to the development of Arctic underwater listening and detection systems as well. The development of these systems spanned more than a decade and may even have reached a more advanced level of functionality by the early 1980s than is generally presumed.

While Canadian politicians may have offered bluster and nationalistic rhetoric when speaking publicly on the question of Arctic sovereignty, the facts suggest that behind the scenes, the defence of the region was being carried out in the same cooperative spirit that has always characterized the defence of the continent. The fears of secretive American submarine passages were unfounded and concerns over the diminution of Canadian sovereignty exaggerated.

Managing the Operations

The deployment of American nuclear submarines to the Arctic dates back to the voyage of USS *Nautilus* in 1958. *Nautilus'* trip to the North Pole, via the Bering Strait, was as much a scientific and public relations venture as a military expedition; however, its success quickly raised the possibility of regular naval operations in a potentially important new maritime region. Lying between the United States and the USSR, the Arctic Ocean offered the U.S. Navy the possibility of operating directly off the exposed Soviet northern coast and interdicting Soviet shipping along the Northern Sea Route. From a peacetime perspective, thought was even given to using this new route as a commercial and military transit corridor between the Pacific and Atlantic Oceans.⁹

Given its geographic position, it was inevitable that the U.S. Navy would feel it necessary to include the Canadian Arctic Archipelago in its plans to develop an under-ice navigation and war-fighting capability. The first voyage through Canadian waters was undertaken only two years later by USS *Seadragon*, which passed from east to west through the Parry Channel. Politically, this transit posed a potential problem for the Canadian government. In 1960, the Canadian position vis-à-vis its Arctic waters was ambiguous at best; the Cabinet had reached a decision in principle to claim complete sovereignty over these waters by drawing straight baselines around the Archipelago. However, this claim had never been made official, nor had it been conveyed to Washington.¹⁰ The Canadian position, that the waters transited by *Seadragon* were internal, thus conflicted with the view held by the United States, that the Canadian territorial sea extended out only three nautical miles around each island and that the waters beyond were international.

As early as 1959, the Department of External Affairs and the Royal Canadian Navy had hoped to “manoeuvre” their American counterparts

into requesting permission to pass submarines through the Archipelago. Yet by 1960, hopes for such an easy solution had been dashed as these suggestions were refused outright. While neither the U.S. Navy nor the State Department was seeking to antagonize its Canadian allies, they remained leery of creeping maritime jurisdiction and the setting of any precedents which might infringe upon the freedom of the seas and American rights of navigation elsewhere.¹² In 1960, however, this difference of opinions did not generate the kind of diplomatic gridlock which the two countries would experience after the passage of *Manhattan* or *Polar Sea* decades later. Rather, it was handled with a remarkable degree of flexibility and cooperation which ultimately served both states' interests.

Captain George Steele, the commander of *Seadragon*, made it clear in his 1962 book, *Seadragon: Northwest Under the Ice*, that the voyage had been undertaken with the assistance of Canada and in the context of joint alliance cooperation.¹³ To further ensure that Canadian sensitivities were not bruised, the U.S. Navy invited a Canadian observer aboard *Seadragon* in the person of Commodore O.C.S. Robertson (RCN). Yet, while aboard, Robertson functioned as more than an observer. He played a significant role during the voyage and actively contributed to the success of *Seadragon's* transit. As the former commander of the icebreaker HMCS *Labrador*, Robertson was as familiar with the region as anyone alive, save the local Inuit, and his advice was actively sought by the ship's command and by the civilian scientists aboard.¹⁴ Robertson even took the opportunity to subtly emphasize Canadian sovereignty by running films on the north, giving lectures on the subject, and bringing Canadian stamps for the American crew to send mail during their brief stopover at the Air Force base at Resolute.¹⁵

Despite being denied the explicit acceptance of Canadian sovereignty that it had initially sought, External Affairs was generally pleased with the result. The request for concurrence that it received implied at least some Canadian control over these waters, since even notification would not have been required for operations in international waters. Robertson's presence also ensured that the passage could be seen as a joint military venture. All considered, it was assumed that the voyage had actually strengthened Canada's sovereignty.¹⁶ The next transit therefore proceeded in much the same manner. In 1962, USS *Skate* crossed the Parry Channel; again Canada was formally notified, and External Affairs remained confident that American concurrence was strengthening the Canadian claims.¹⁷

Despite the general contentment with this functional arrangement, concerns remained that the United States may eventually cease to be so cooperative. The Canadian legal position remained undeclared and was therefore insecure. The result was that, while External Affairs was content with the level of American cooperation, it remained in the awkward position of having to assert its sovereignty as vigorously as it could without being able to declare the basis of that sovereignty. During the return passage of USS *Skate*, for instance, Ottawa learned of the transit only after it had already begun. The department felt the need to protest, yet it worried that this might be misunderstood and create a "political embarrassment."¹⁸ Instead, Canada chose to push the idea of consultation and cooperation on these passages as much as possible. It was admitted, however, that specifying the basis of Canada's right to be consulted had to be expressly avoided, since doing so might upset a delicate status quo.¹⁹

This indirect route led to a number of tenuous requests. In September 1962, the Canadian Interdepartmental Committee on Territorial Waters suggested that the Canadian Nuclear Safety Committee should be consulted before any future voyages. Ultimately, this procedure was not followed.²⁰ That August, External Affairs also made an attempt to prevent the U.S. Navy from releasing any information that might cast doubt on Canadian sovereignty. The State Department was told that Canada had no intention of raising the sovereignty issue but felt that any press release concerning American activities "which did not imply Canadian complicity" could conceivably encourage the Russians to demand passage as well.²¹

Every effort was made to approach the issue in as casual and non-confrontational a manner as possible, since the fear of an American rejection of Canadian sovereignty remained ever present. When Canada did seek diplomatic remedy or reassurance, it generally sought to do so in a very low-key visit. After both *Seadragon's* and *Skate's* passages, Canadian diplomats called on their American counterparts to remind them of the importance of consultation and of seeking appropriate and timely clearance. These subjects were, however, always brought up as a casual afterthought during conversations on another subject.²²

From the Canadian perspective, this approach was far from ideal, as it relied entirely on a continued American willingness to cooperate. Yet, it was pursued for a very simple reason: it was the only practical approach available. As the United States had proven itself unwilling to request formal permission for these transits, Canada had only two options: to declare sovereignty outright and demand compliance or to work with the Americans and assert as much control as possible on a functional basis.

The first approach was unlikely to succeed and would probably have resulted in a political and diplomatic crisis. From a sovereignty perspective, it must also have appeared counter productive. In the early 1960s, Canada was still considering its options in the north and was unsure as to what political or legal approach to take.²³ Many politicians and prominent bureaucrats felt strongly that a functional approach served Canada's interests through the establishment of a precedent of American acceptance and a recognition of Canadian control.²⁴ An outright claim may have forced the Americans into a damaging rejection of Canadian sovereignty.

The discreet Canadian approach was taken to avoid forcing the U.S. into saying or doing anything that could be seen as a rejection of Canadian sovereignty, while also avoiding any public outcry that might force the government's hand. Ultimately, this policy was a success, mostly because the State Department and the U.S. Navy continued to prove so sensitive and responsive to Canadian concerns. There was no attempt to undermine Canadian sovereignty, and the few mistakes that were made were simply that – mistakes that were quickly remedied. In 1960, for instance, news about USS *Seadragon's* transit was supposed to be issued in a joint Canadian-American press release. The U.S. Navy, however, submitted the release to External Affairs at the very last minute with no chance for input. In fact, the incident embarrassed the State Department, which then requested that the Navy improve its procedures.²⁵

In fact, all the political apprehensions surrounding the issue do not appear to have filtered down to the operational level, where Canadian and American agencies seem to have worked in complete cooperation. After his time on *Seadragon* in 1960, Robertson actually authored a short piece on the importance of continued and increased U.S. operations in the region, which found its way into *Seadragon's* patrol report.²⁶ The commodore was again brought aboard an American boat for a short time in the winter of 1960. This time the vessel was USS *Sargo*, and the invitation certainly illustrated the level of trust and cooperation between the two militaries. While it may have been seen as politically necessary to have a Canadian observer aboard during a transit of the Northwest Passage, *Sargo's* operations were almost exclusively limited to the Arctic Ocean.²⁷

This cooperation extended beyond the military as well. While these submarines were engaged in exploration of their own, they still relied heavily on Canadian charts, and there was little apprehension on the Canadian side about providing such assistance. In the early 1960s, the Department of Mines and Technical Surveys was readily handing over

what hydrographic information it had on the Queen Elizabeth Islands and the Parry Channel, while the Canadian Hydrographic Service was actively helping the U.S. Navy chart its future submarine routes.²⁸

The Abandonment of the Arctic

Despite this promising beginning, the Arctic was not to become a significant theatre of operations in the 1960s. The first voyages had certainly generated a great deal of excitement, and after the voyage of USS *Skate*, the U.S. Navy had prepared an ambitious seven-year program of operational and research cruises.²⁹ Two of these voyages, planned for 1967 and 1968, were even scheduled to be in Canadian waters.³⁰ By 1963, however, this entire program had fallen through. Logistically, the decade was a difficult time for the U.S. submarine service after the loss of USS *Thresher* with all hands in 1963. The *Thresher* disaster had revealed certain structural deficiencies in American boats and shocked the Navy into a major overhaul program called SubSafe. The effect was to curtail the availability of nuclear submarines for operational deployment, and, against the Navy's more pressing conventional missions, the Arctic program was considered expendable.³¹

Strategically, the Soviet threat in the region had also failed to materialize. After USS *Nautilus* had proven the utility of the Arctic as a transit corridor, there had been fears that Soviet boats might use that same route to head south, thus bypassing NATO defences at the Greenland-Iceland-United Kingdom (GIUK) Gap. The patrol report of *Seadragon* raised this as a possibility as early as 1960, and the announcement that the Soviet SSN *Leninsky Komsomol* had visited the North Pole in June 1962 certainly stoked such fears. The Canadian defence establishment understood this could conceivably pose a risk, and in 1963, the Naval Board had agreed that some surveillance capability was needed in the Arctic waters.³²

Yet the Soviet SSN fleet in the early 1960s was small, and what concerns existed over Soviet Arctic activities were based on potentiality rather than any existing danger. By 1964, the Canadian Navy, which was then considering acquiring SSNs of its own, assessed the dangers from Arctic operations as minimal and, in fact, more of a political than a military concern.³³ A report of the Nuclear Powered Submarine Program concluded that:

... the USSR can acquire no major military capability which it would otherwise lack nor can it achieve any strategically significant result. Indeed, one can argue in all seriousness that there are few areas in which the USSR could achieve less for a

given expenditure of resources than by deploying its submarines to the Canadian Arctic.³⁴

This threat assessment mirrored conclusions in the United States. As late as 1967, the chief of naval operations was writing to senior Arctic scientist Waldo K. Lyon to say that the U.S. Navy had no information that the Soviets had made a complete Arctic transit, had modified their boats for that purpose, or had any intention of deploying further assets to the region.³⁵ The potential missile-firing locations in the Arctic at the time were considered inferior to those in the Atlantic or Pacific, and it seemed very unlikely that the Soviets would use the region for reasons of politics, environment, and distance.³⁶

Under-Ice Detection Systems

The end result was that scarce U.S. SSNs were deployed elsewhere, and, after USS *Sargo's* 1962 transit, the Arctic was abandoned entirely for five years. Yet, while polar operations were not considered pressing enough to warrant much American attention, and certainly not significant enough to justify the acquisition of SSNs for the Canadian Navy, work continued on under-ice detection systems and technology. Records on Canadian under-ice research remain largely classified; however, from what is available, it appears as though these projects had begun in earnest as early as the late 1960s and were undertaken jointly with the U.S. Navy and a number of other American defence and research agencies.

In 1968, the Canadian Defence Research Establishment Pacific (DREP) had conducted preliminary experiments by placing five recording instrument packages on the seafloor at strategic choke points through which enemy submarines would have to pass to transit the Arctic Archipelago.³⁷ These noise spectrum analyzers recorded underwater sounds once per hour for a year and were designed to provide a better understanding of the character of Arctic waters.³⁸ That same year, the Canadian Defence Research Establishment Atlantic (DREA) was working on a separate sound propagation study in Hudson Bay and Hudson Strait.³⁹ Both projects were joint ventures, undertaken with the help of the U.S. Underwater Sound Laboratory, the Naval Ordnance Laboratory, and the Naval Underwater Weapons Research and Engineering Station. The purpose of all this effort was to improve northern anti-submarine capabilities and, ultimately, to create an operational submarine detection network.⁴⁰

The first really practical experiments with a prototype system were begun in 1969. The controversial voyage of SS *Manhattan* that year had certainly spurred the Canadian government of Pierre Trudeau into

placing more emphasis on Arctic initiatives and the defence of sovereignty. Canadian defence policy shifted in the 1970s to reflect these new priorities, and a subsurface surveillance system was publicly considered in the 1971 Defence White Paper.⁴¹ This system was envisioned as part of a larger North American detection grid, and research continued to be undertaken as a joint Canada-U.S. project – an ironic fact given that the threat to Arctic sovereignty represented by *Manhattan* was seen as coming from the United States.

In 1969, the DREP had installed a test “barrier” of sono-buoys, donated by the United States, in Viscount Melville Sound and M’Clure Strait to determine how such a barrier might be practically deployed and to see if it could work as an “interim” system.⁴² By April 1970, it had deployed a similar barrier through the ice in that same area to measure ice drift and under-ice ambient noise. The system was temporary at best, as experiments showed that the region’s harsh ice conditions would destroy 80 percent of the devices within five months.⁴³ By 1973, the DREP had moved to experiments with a larger vertical line array system in Barrow Strait, while sono-buoy testing continued in Baffin Bay.⁴⁴ These early experiments were largely unproductive in that they failed to provide any usable acoustic data and provided little tracking information.⁴⁵ Yet they had built a foundation of acoustic knowledge in the north and established a firm precedent of cooperation in Arctic defence.

While politics certainly provided a powerful motivation for this research, the strategic situation was also beginning to shift. By the mid-1970s, the Soviet Navy had grown into a legitimate blue-water fleet with a powerful nuclear submarine arm. Its arsenal of modern SSN and ballistic missile submarines (SSBNs) had increased exponentially, and the range of Soviet submarine-launched ballistic missiles (SLBMs) had kept pace.⁴⁶ While the details of this naval evolution are well documented elsewhere, the relevant point is that by 1972, the Soviets’ new SS-N-8 SLBM, with a range of 7,800 kilometres, offered their navy the capability of striking North American targets from firing positions in the Arctic. By 1975, the SS-N-8 model two, with a range of 9,100 kilometres, offered the new Delta-class submarines the ability to strike the entire United States from as far as the North Pole. These new missiles also made the Arctic an ideal launch position, and in some cases the only one, from which Soviet submarines could attack both European and North American targets.⁴⁷ The effect was to allow Soviet SSBNs to forego transiting the GIUK Gap en route to their patrol stations. By the mid-1970s, this shift had been confirmed by NATO listening posts in the Gap, as detections dropped sharply.⁴⁸ Soviet doctrine had shifted, and the Arctic had assumed a new strategic importance.

Waldo K. Lyon, the senior under-ice submarine expert in the United States, wrote in 1972 that the growing Soviet threat had prompted a reaction from the Canadian government, which was moving faster towards developing a functional Arctic Sound Surveillance System (SOSUS) network.⁴⁹ Lyon had extensive contacts within the Canadian Arctic scientific and military communities and would certainly have been familiar with the mindset and intentions of those establishments – if not necessarily with those of the political class. By 1974, it was clear that no such system yet existed. However, in a situation review brief that year, Lyon wrote that one was under consideration for installation as early as 1975.⁵⁰

How this system was further developed remains classified. Joseph Jockel believes that it was abandoned in the mid-1970s after it was realized that it would have required SSNs to make it truly effective.⁵¹ Since the 1971 White Paper, there had also been little further public mention of an Arctic SOSUS net, and in 1983, the government's own Senate Standing Committee on Foreign Affairs certainly implied that it did not exist by stating that the construction of an Arctic detection capability would be useful if it could be done at a reasonable cost.⁵² Accepted opinion is therefore that Canada was never able to develop a detection capability of any real effectiveness. While there is not enough evidence to dispute this conclusion with any certainty, documents from the personal papers of Waldo K. Lyon seem to imply that such a system, or a number of such systems, actually reached an advanced experimental stage in the early 1980s and perhaps even a level of functionality that is not generally appreciated.

Evidence of this development is fragmented but can be found in a number of American reports and in the operational details of the few submarines that transited the Archipelago during the late 1970s and early 1980s. Such transits were actually relatively infrequent – however, the most common task listed, aside from survey work, was the testing of underwater detection systems.⁵³ The first cruise in Canadian waters since operations were suspended in 1962 seems to have been undertaken by USS *Flying Fish* in 1977, and one of the boat's missions was listed as providing services to Canadian anti-submarine warfare (ASW) research personnel in Barrow Strait and to acoustic research studies in Kane Basin.⁵⁴

By 1981, Canada was involved in a joint Canada-U.K.-U.S. submarine exercise, SUBICEX 1-81. According to the Canadian-American Permanent Joint Board on Defence (PJBD) journal, one of the participating American boats, USS *Silversides*, was tasked with providing “a realistic target for the

Canadian sensor system in the Canadian Archipelago, which is designed to interdict submarine infiltration from across the polar cap.”⁵⁵ Two years later, USS *L. Mendel Rivers* was again testing what were described as acoustic sensors in Nares Strait and magnetic sensors in Barrow Strait, the same areas where USS *Flying Fish* had provided research support four years earlier.

A 1981 study, examining the feasibility of resupplying SSNs from icebreakers, also mentioned this system and described it as an “undersea defence sensor and communication system which was *actively* monitoring submarines leaving for and returning from patrol and able to detect hostile intruders” (italics added).⁵⁶ Two years later, Waldo K. Lyon again cited this capability in a report, stating that the Canadian defence establishment was currently operating acoustic and magnetic sensors in chokepoints in certain key passages “which have been tested against US submarines many times.”⁵⁷ Lyon even assumed their integration into the U.S. command structure in the event of a major conflict. As late as 1985, Canadian senator Paul Lafond, the chairperson of the Senate Committee on National Defence, had confirmed in an interview that an experimental hydrophone system had in fact been installed in the narrows of Lancaster Sound between Borden Peninsula to the south and Devon Island to the north.⁵⁸

How operational and permanent this system ultimately became remains in question. Statements made by officials throughout the late 1980s certainly suggest that it was not a permanent arrangement. By 1986, Allan Lawrence, head of the Canadian section of the PJBD, and Fred Crickard, a high-ranking DND official, were publicly calling for such a system to be installed in the Northwest Passage – implying that whatever was being experimented with in the early 1980s had been decommissioned by 1986, or was at least extremely classified.⁵⁹ There was certainly no system in place in the early 1990s, as by that point, the Canadian military was actively seeking quotes for the “Arctic subsurface surveillance system,” or ARCCSSS – which was supposed to establish fixed listening arrays in Robeson Channel, Jones Sound, and Barrow Strait.⁶⁰ And in fact, while the limited documentation surrounding this project makes some mention of the early acoustic research conducted in the 1970s, there is no mention of any system operating in the 1980s.⁶¹

It therefore seems likely that whatever had been installed had never become permanent or fully operational. Regardless, two facts stand out. Firstly, the Canadian military was not quite as blind to what was transpiring in the region as was generally presumed, and secondly, far from sneaking about the Canadian north without regards to Canadian

sovereignty, the United States appears to have been working closely with Canadian defence agencies for more than a decade to maximize Canada's surveillance capabilities.

American SSN Operations

A closer look at American submarine operations, from the resumption of activity in Canadian waters in 1977 until 1986 (when records become totally unavailable), bears out this trend of close cooperation and gives lie to the assumptions that Canada was either ignorant of or uninvolved in the defence of its Arctic waters. After USS *Skate's* passage in 1962, there were a total of six American SSN voyages through the waters of the Archipelago. Records seem to indicate that the majority of these were undertaken with the full knowledge, concurrence, and often even participation of the Canadian government. USS *Seadragon* and *Skate* requested concurrence to transit the Northwest Passage, while Commodore Robertson was invited aboard USS *Sargo*, which had briefly entered M'Clure Strait. The presence of the next submarine in Canadian waters, USS *Flying Fish* in 1977, actually appears to have been made at the request of the Canadian government.⁶²

The 1979 voyage of USS *Archerfish* was a cooperative venture and officially labelled a joint Canadian-U.K.-U.S. exercise. On its northbound passage, through the Labrador Sea and Davis Strait, it even engaged in war games with Canadian Forces aircraft and HMCS *Ojibwa*. The second such three-nation exercise was undertaken in 1981, when USS *Silversides*, as mentioned earlier, provided detection services to Canadian arrays. Two years later, USS *L. Mendel Rivers* undertook similar duties.⁶³

By the 1980s, American Arctic submarine activity had increased dramatically as global strategic circumstances again appeared to be shifting. In 1981, the Soviet Navy deployed the Typhoon-class SSBN, the first Soviet boat specifically designed for under-ice operations, and by 1981, there were a total of eighty-two SSBNs stationed at Soviet Arctic bases, equipped with 991 SLBMs.⁶⁴ In addition to this build-up, the development of the long-range cruise missile caused some serious concern within defence circles. The short range and slow speeds of the cruise had traditionally limited its use as a strategic strike weapon; however, the development of missiles with a three-thousand-kilometre range, like the SS-NX-24, had made it a potentially useful first-strike weapon. Areas in the Canadian Arctic thus became ideal cruise-launching positions, in range of the major targets on the East Coast and far from significant Western anti-submarine warfare assets.⁶⁵

In part a reaction to this Soviet build-up, American naval strategy in the 1980s underwent a significant and aggressive shift towards Arctic

operations. Articulated for the first time in 1983 by Admiral James D. Watkins, the "Maritime Strategy" was a broad maritime concept for the global conduct of war in which the U.S. Navy planned to attack Soviet forces directly in their northern bases. As Watkins explained, this naturally meant that the U.S. was "putting increased emphasis" on under-ice operations.⁶⁶

American activity in the Arctic thus rose from twelve ship deployments in the 1970s to thirty-seven in the 1980s.⁶⁷ Yet, this overall increase in transits did not translate into significant new deployments into Canadian waters. The U.S. Navy's focus remained on operations in the Polar Basin and in the Russian Arctic seas – areas where the Maritime Strategy foresaw future submarine combat.⁶⁸ From the period where documents are available, only three of the twenty-two Arctic deployments up to that point involved operations in the Archipelago.⁶⁹

Arranging the Transits

How these transits were structured within Canadian-American defence arrangements remains unknown; however, they appear to have been arranged on an *ad hoc* basis. Certain statements seem to imply that the Canadian government was even unsure as to whether or not the U.S. was informing it before every voyage. During the *Polar Sea* crisis of 1985, the PJBD chairman of the Canadian section, Allan Lawrence, told the press that he was unsure if the government "really knows whether our sovereignty has been transgressed by either American or Soviet submarines."⁷⁰ That year, the associate defence minister, Paul Dick, was also asked if the Americans informed Canada when they dispatched submarines into Canadian Arctic waters – his response was simply, "we know they tell us sometimes."⁷¹

A proper and more complete understanding of the defence relationship from this period will have to await further documentation. However, the evidence available seems to suggest that the pattern of behaviour observed in the 1960s had continued into the 1980s. With the Canadian legal position on Arctic sovereignty still undeclared and with a genuine defence problem to manage, the Canadian government considered the American presence to be a practical requirement and simply continued its functional working relationship. Operations were dealt with on a case-by-case basis, and an overarching agreement to govern Arctic activity was not seriously pursued. The rationale for such a policy had not changed, as to have worked out such an agreement would have required Canada to take the awkward and potentially dangerous step of finally clarifying its position vis-à-vis sovereignty.

The lack of such an agreement is by no means certain; however, by 1985, records indicate that the PJBD was just beginning to work out an official joint Arctic defence, research, and infrastructure-sharing strategy.⁷² By December of that year, the American section of the PJBD had offered a draft Arctic defence strategy to the board for review. This draft remains classified, but a letter from Allan Lawrence to the prime minister indicated that it focused on enhancing North American defences against Soviet submarines. That same meeting also saw mention of an Arctic maritime NORAD. This proposal was suggested unofficially yet received widespread approval from both the Canadian and American sections.⁷³ Lawrence strongly indicated his approval to Mulroney for such a solution, stating “there are political and emotional arguments against such a scheme, just as there are logical arguments in its favour.”⁷⁴

This close cooperation seems to refute much of the fear and insecurity that characterized so many of the Canadian sovereignty debates of the 1980s. It appears as though the defence of the region was undertaken in a fully cooperative spirit, and it is difficult to perceive how such operations could have eroded Canadian sovereignty. Of the nine American submarines that entered the Canadian Arctic Archipelago between 1960 and 1986, seven of them appear to have done so with the full knowledge and consent of the Canadian government, and six of them either had a Canadian representative aboard or involved the active participation of Canadian forces in war games or tracking system tests. The two passages for which there is no immediately available evidence of Canadian participation or concurrence are those of USS *Spadefish* in 1984 and USS *Pintado* in 1978, both of which were undertaking survey work.⁷⁵

Documents on these expeditions are extremely limited. The vessel patrol reports are unavailable, and the PJBD discussions from 1978 and 1984 are either classified or partially so. It is entirely possible, then, that these transits were known to the Canadian government, but the records are simply lacking. Indeed, a report written by Waldo K. Lyon in 1983 would seem to suggest this. In it, Lyon presents a proposal for forward deploying USCG icebreakers into the Arctic Archipelago for the purpose of resupplying American SSNs in wartime. This report’s relevance lies in the fact that it includes not only an admission that American submarines had, by that point, transited nearly all potential passages through the Archipelago but a map very clearly showing the routes of those transits. Citing Canadian political sensitivity, Lyon suggested that the report not be released too broadly and that its level of classification be set at either no foreign distribution or Canadian-American eyes only. Had any of these transits been kept secret from the Canadian government, it would seem

odd to classify a report of this nature in a way which might permit distribution to Canadian defence authorities.⁷⁶

The Impact on Canadian Sovereignty

Working on the assumption that Canada knew about most, and perhaps all, of these voyages, it would seem prudent to ask whether or not there was anything to the criticism levelled at the government in 1986. Even if these voyages were cooperative, could they still be considered damaging to Canadian sovereignty? Some authors have suggested that such knowledge might ironically have been more damaging to the Canadian claim than ignorance. Michael Byers, for instance, believes that Canada knew about at least some of these voyages and that a combination of knowledge and acquiescence without permission might have fatally weakened the Canadian legal claim. To Byers, Canada's inability or unwillingness to protest effectively could serve as evidence that "in the corridors of international diplomacy, where it really matters – Canada has already surrendered its claim."⁷⁷ John Carrol and Kenneth Curtis have likewise commented that the presence of American submarines in the area would have a significant impact on the application of international maritime law.⁷⁸ The authors of *Arctic Front* have suggested something similar, that these submerged transits might accomplish what the government had feared from the voyage of *SS Manhattan* in 1969 – the establishment of the precedent required to classify a strait as international.⁷⁹

Yet, it seems unlikely that this could be the case. The Canadian Department of National Defence had certainly considered the issue and, as early as 1971, had concluded that a submerged transit could not establish a right of passage.⁸⁰ In order to be admissible to a court as evidence of a strait's usefulness to international traffic, these submarine voyages would have had to have been public knowledge. An examination of the records of the ICJ and similar bodies does not yield a single example of a state using a secret voyage as evidence.⁸¹ Rob Huebert has noted that international tribunals can only publish evidence that is publicly acknowledged, and, as state secrets, submarine voyages would have no such standing.⁸² In 1948, the *Corfu Channel* case had used only the records of British warships and the commercial vessels that had docked at Corfu harbour and submitted themselves to customs inspection.⁸³ The many vessels that transited without submitting themselves to customs in Corfu were not included in the court's calculation. As this case is the precedent on which the relevant international law is based, it seems highly unlikely that unregistered and highly secret submarine passages could be

considered precedent for making the Northwest Passage an international strait.

If the fact that Canada knew about the transits could serve to remove the secret nature of the transits, then a case would have to be made that they were being undertaken as a protest of Canadian maritime claims or without Canadian assistance and participation. This would seem an impossible proposition given the cooperative nature of the operations. These voyages were clearly part of the decades-long joint continental defence effort and were no more a protest of Canadian waters than were the DEW Line resupply voyages of the 1950s. Like those resupply missions, American submarine operations were also covered by pre-existing joint defence arrangements. In 1952, the PJBD decided that a need existed to streamline and simplify the operation of Canadian and American warships engaged in continental defence. Vessels often travelled into the waters of the other power, and constant diplomatic applications for clearance were considered unnecessary and inefficient. As such, the PJBD established simpler rules for naval clearance in the form of Recommendation 52/1:

In the interests of the security of the northern part of the Western Hemisphere, Canada and the United States should make provisions to ensure that public vessels of either country engaged in matters of concern to mutual defence should be able to visit ports or territorial waters of the other country, or its possessions, with a minimum of formality.⁸⁴

To ensure this was the case, the PJBD stipulated that, while diplomatic visits should continue to be coordinated through diplomatic channels, “informal or operational visits” would require only “advanced notification through service channels.”⁸⁵ These new rules were approved by the Canadian government on 19 May 1952 and two days later by the Americans. Since American submarine transits were clearly engaged in matters of mutual defence and were clearly operational in nature, there was no need for a formal diplomatic request to enter Canadian waters and no need for Ottawa to have granted any formal permission. All that was required was notification of Canadian service authorities, and this appears to have taken place.

The Need for Secrecy

Despite the fact that the joint defence relationship appears to have been so well managed and sovereignty so well protected, the Canadian government preferred to keep this relationship and these activities out of the public eye. Even basic information surrounding submarine activity

was not declassified, and when the U.S. Navy released such information, it excluded mention of activities in Canadian waters. In 1977, for instance, USS *Flying Fish* conducted operations in both the Archipelago and the Arctic Ocean. The original U.S. Navy press communication instructions dictated that the route was to be classified. However, that was eventually rethought in an effort to give more credibility to the Arctic submarine program. Yet, in the revised public release, only the “general route” was given from Norfolk to the central Arctic basin via the Greenland Sea and “deep water channels.”⁸⁶ Secrecy within the Canadian government itself even appears to have been fairly secure. As late as 1982, while working on an important memorandum to Cabinet on Canadian sovereignty, External Affairs bureaucrats demonstrated a complete ignorance of all American submarine activity after 1962.⁸⁷

The motivation for such concealment likely stemmed from a desire to not upset the existing arrangements or cause domestic political difficulties. Arctic sovereignty has historically been one of a very few subjects capable of evoking aggressive Canadian nationalism, and the political implications of this public sentiment have never been pleasant for any government. In 1969, the public outcry over *Manhattan* forced the Trudeau government into an unwanted confrontation with the United States, and this was to reoccur in 1985 when *Polar Sea* ultimately forced the Mulroney government to negotiate with the U.S. in an atmosphere of public hostility and intense political pressure.

Conclusion

The political and diplomatic fallout from the *Polar Sea* incident largely remains classified. However, it clearly affected Canadian defence priorities. By 1987, the government’s new White Paper on defence called for the acquisition of ten to twelve SSNs and an underwater detection system to locate intruding submarines.⁸⁸ This aggressive unilateral approach represented a considerable departure from past Canadian behaviour and certainly shocked and worried the U.S. Navy. Indeed, the strength of this Canadian reaction, on an issue where the United States saw no real problem with current arrangements, surprised the American section of the PJBD, which was both “mystified and disturbed at the effects.”⁸⁹ Attempts to maintain the joint defence relationship appear to have continued throughout the late 1980s as the two sides continued to work towards a joint Arctic defence strategy, though progress was slowed by political considerations.⁹⁰ Whether the crisis affected American plans to deploy further vessels into the Arctic Archipelago remains unknown, as are the full repercussions of the political fallout on Arctic operations.

When all is considered, the fear and apprehension surrounding Arctic submarine operations appear to have been a significant overreaction. Contrary to generally accepted assumptions, the U.S. appears to have been genuinely eager and willing to include and cooperate with its Canadian counterpart in the defence of the region. The U.S. Navy proved itself a responsible partner, and from the very earliest operations in the Archipelago, Canadian personnel were involved, consent was sought, and publicity was coordinated. The development of Canadian underwater detection systems, from the 1960s into the 1980s, in whatever form they eventually achieved, was also undertaken with material and scientific assistance from American defence agencies. Rather than taking advantage of a lack of Canadian situational awareness in the North, the U.S. was in fact actively assisting the Canadian defence establishment to augment that capability.

While Ottawa was never able to extract the explicit recognition of Canadian sovereignty that it would have preferred, its functional approach ultimately ensured that American defence activities were not taking place without Canadian participation and were not setting a potentially damaging precedent. In the final analysis, while popular anxiety over the issue may have been understandable given the lack of public disclosure at the time, a closer examination indicates that much of that concern and anger was without foundation. And, while the passionate political displays of the time may have been unavoidable, the PJBD was likely correct in its assessment that such emotions were simply “unwarranted.”

Notes

¹ This operation (labelled SUBICEX 1–86) involved USS *Hawkbill*, *Ray*, and *Archerfish* and took place in the Beaufort Sea, the Arctic Basin, and the Greenland Sea; *Submarine Cruises* (list compilation date unknown), U.S. Navy History and Heritage Archives (NHH), Waldo K. Lyon Papers.

² ‘Canada “Aware” of US Submarines in Arctic’, *The Windsor Star*, 6 December 1986, A8.

³ John Honderich, *Arctic Imperative: Is Canada Losing the North?* (Toronto: University of Toronto Press, 1987), 96.

⁴ David L. Larson, ‘United States Interests in the Arctic Region’, *Ocean Development and International Law* 21, no. 2 (1990): 182.

⁵ Elizabeth B. Elliot-Meisel, *Arctic Diplomacy* (New York: Peter Lang Publishing Ltd., 1998), 151.

⁶ Shelagh Grant, *Polar Imperative* (Toronto: Douglas & McIntyre, 2010), 332.

⁷ This is assuming the documents used are accurate for the time period covered. There remains a possibility that there were other American voyages into the Canadian Arctic

during this period that are not considered simply because the brief route descriptions found in the current documentation may have omitted Canadian portions of a larger exercise. Such transits could affect the conclusions reached in this paper, though this must await future declassification.

⁸ Of these eight, there were only two for which there is not *immediately available* evidence to support either Canadian concurrence or active participation – that of USS *Spadefish* in 1984 and *Pintado* in 1978. This is discussed further into this article.

⁹ See for instance: Felix Belair, 'Nautilus Sails under the Pole', *New York Times*, 9 August 1958, 1, and Dwight Eisenhower's conversation with Peter Aurand in Marion D. Williams, *Submarines under Ice* (Annapolis: Naval Institute Press, 1998), 174.

¹⁰ See: Adam Lajeunesse, 'Claiming the Frozen Seas: The Evolution of Canadian Policy in the Arctic Waters', *Arctic Sovereignty and Security: Historical Perspectives* (Calgary: University of Calgary Press, 2011), 235-60.

¹¹ John Diefenbaker, *Memorandum: Canadian Position in Relation to Arctic Waters; Passage of USS Seadragon*, 21 May 1960, Canadian Department of History and Heritage Archives (DHH), MG 01/XII/C/125, Defence, 1952–62, vol. 56.

¹² At the time, the U.S. was actively opposing expanded maritime claims elsewhere. By 1960, Indonesia had drawn baselines around its entire archipelago, and the Philippines would do likewise in June 1961. Unlike the Arctic, however, these nations lay astride vital sea lanes, and their actions provoked vigorous American protests. In 1960, the U.S. conveyed its displeasure by announcing that the submarine USS *Triton* would pass through the waters about to be claimed by the Philippines on its circumnavigation of the globe.

¹³ G.P. Steele, *Seadragon: Northwest under the Ice* (New York: Dutton, 1962).

¹⁴ For an excellent account of Robertson's voyage see: Jason Delaney and Michael Whitby, 'The Very Image of a Man of the Arctic: Commodore OCS Robertson', *Canadian Naval Review* 4, no. 4 (Winter 2009): 25-29.

¹⁵ *Short Summary of Operation* [USS *Seadragon's* transit], 14 September 1960, NHH, Waldo K. Lyon Papers.

¹⁶ Memorandum from Under-Secretary of State for External Affairs to Secretary of State for External Affairs, 10 June 1960, *Documents on Canadian External Relations*, vol. 27 (1960), document no. 665.

¹⁷ Memorandum from the Deputy Minister of Defence to the Undersecretary of State for External Affairs, 18 July 1962, Library and Archives Canada (LAC), RG 25, vol. 11, file 9057-40.

¹⁸ Memorandum on Passage of USS *Skate*, 20 September 1962, LAC, RG 25, vol. 11, file 9057-40.

¹⁹ Memorandum on Passage of USS *Skate*, 20 September 1962, LAC, RG 25, vol. 11, file 9057-40.

²⁰ Memorandum for the Minister, *Arctic Sovereignty: Passage of USS Skate through Waters of Arctic Archipelago*, 20 September 1962, LAC, RG 25, vol. 11, file 9057-40.

²¹ 'Note for Mr. Cadieux, RE: Draft Memorandum to Minister on Arctic Sovereignty', 18 September 1962, LAC, RG 25, vol. 11, file 9057-40.

²² Memorandum: *Canadian Arctic Passage of US Submarine Seadragon*, 25 August 1960, NHH, Waldo K. Lyon Papers; Memorandum: *USS Skate Visit to Canadian Arctic Archipelago*, 1 July 1959, LAC, RG 25, vol. 5282, file 9061-40, pt. 2.

²³ See Lajeunesse, *supra* note 10.

²⁴ Whitney Lackenbauer and Peter Kikkert, 'Sovereignty and Security: The Department of External Affairs, the United States, and Arctic Sovereignty, 1945-68,' in *In the*

- National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909–2009*, ed. Greg Donaghy and Michael Carroll (Calgary: University of Calgary Press, 2011).
- ²⁵ *Navy's Handling of Press Release on USS Seadragon*, 7 September 1960, NARA, RG 59, entry 5298, box 13.
- ²⁶ *The Arctic as a Theatre of War in 'SUBICEX 3–60 Report'*, 4 October 1960, NHH, Waldo K. Lyon Papers.
- ²⁷ *Sargo* entered M'Clure Strait very briefly en route to the North Pole.
- ²⁸ W.M. Cameron to Waldo K. Lyon, 23 October 1963, and N.C. Nash to Waldo K. Lyon, 21 November 1963, NHH, Waldo K. Lyon Papers.
- ²⁹ *OpNav Instruction 03470.4*, 27 May 1963, NHH, Waldo K. Lyon Papers.
- ³⁰ *Comments on Draft Seven Year Program*, 22 November 1962, NHH, Waldo K. Lyon Papers.
- ³¹ William M. Leary, *Under Ice: Waldo Lyon and the Development of the Arctic Submarine* (College Station: Texas A&M University Press, 1999), 227–28.
- ³² *Staff Study of the Operational Requirements in the Canadian Arctic*, 9 April 1963, DHH, 79/246.
- ³³ *A Canadian Nuclear Powered Submarine Program Report*, May 1964, DHH, Gigg Papers, 88/64, box 1.
- ³⁴ *A Canadian Nuclear Powered Submarine Program Report*, May 1964, DHH, Gigg Papers, 88/64, box 1.
- ³⁵ Office of the Chief of Naval Operations to Waldo K. Lyon, 26 September 1967, NHH, Waldo K. Lyon Papers.
- ³⁶ Office of the Chief of Naval Operations to Waldo K. Lyon, 26 September 1967, NHH, Waldo K. Lyon Papers.
- ³⁷ A.R. Milne to Chairman, Defence Research Board, *Operation Icepack 8–68*, 28 May 1968, LAC, RG 24, vol. 24033, file 3801–06.
- ³⁸ A.R. Milne to Chairman, Defence Research Board, LAC, RG 24, vol. 24033, file 3801–06.
- ³⁹ W.A. von Winkle (Commanding Officer, Naval Underwater Systems Centre) to Chief of Naval Operations (U.S.), *CANUS Project Data*, 22 September 1970, LAC, RG 24, vol. 24033, file 3801–06.
- ⁴⁰ R.E. Banks to Director, Northern Economic Development, 24 July 1970, and R.E. Banks to M. Shanstone, 17 July 1970, LAC, RG 24, vol. 24033, file 3801–06.
- ⁴¹ Donald S. Macdonald, *Defence in the 70s* (Ottawa: Information Canada, 1971), 18.
- ⁴² J.H. Granton to Chairman, Defence Research Board, *Sonobuoys for Arctic Use*, 11 December 1969, LAC, RG 24, vol. 24033, file 3801–06.
- ⁴³ Note from Stan Toole to 'Miss. Johnson,' 29 April 1972, LAC, RG 24, vol. 34033, file 3801–26.
- ⁴⁴ A.M. Patterson (Deputy Chief, Canadian Defence Research Staff) to Chief of Defence Research Establishment Pacific, LAC, RG 24, vol. 34033, file 3801–26.
- ⁴⁵ R.E. Banks to Chief, Canadian Defence Research Staff, *Status Report*, 16 October 1972, LAC, RG 24, vol. 34033, file 3801–26.
- ⁴⁶ The Soviet fleet had expanded from three SSNs in 1960 to forty in 1975. The SSBN fleet had undergone a similar growth, from one in 1960 to sixty in 1975; Norman Polmar, *The Naval Institute Guide to the Soviet Navy* (Annapolis: U.S. Naval Institute, 1986).
- ⁴⁷ Harriet Critchley, 'Polar Deployment of Soviet Submarines', *International Journal* 34 (Autumn, 1984): 842.

- ⁴⁸ Honderich, 92.
- ⁴⁹ Waldo K. Lyon, *Possible Utilization of Submarine (NR-1) in Support of Arctic Surveillance Missions*, 6 October 1972, NHH, Waldo K. Lyon Papers.
- ⁵⁰ *Situation Review 1974*, NHH, Waldo K. Lyon Papers.
- ⁵¹ Joseph Jockel, *The US Navy, MARCOM and the Arctic* (paper presented to the Conference on Undersea Dimensions, of Maritime Strategy, Halifax, Nova Scotia, Canada, 21-24 June 1989), 31, DHH, 39/436.
- ⁵² Report of the Sub-Committee on National Defence of the Standing Senate Committee on Foreign Affairs, *Canada's Maritime Defence*, May 1983, 51.
- ⁵³ *Submarine Cruises* (list compilation date unknown), NHH, Waldo K. Lyon Papers.
- ⁵⁴ Waldo K. Lyon and Allan Beal, *Proposal for Forward Area Logistic Support of Submarines in the Arctic*, 1 August 1983 & Message to CINCLANDFLT, March 1977, NHH, Waldo K. Lyon Papers.
- ⁵⁵ PJBD, *Journal of Discussions*: 160th Meeting, 20-23 October 1981, DHH, 82/196.
- ⁵⁶ R.R. Carrett to Commander, Naval Ocean System Centre, 4 June 1981, NHH, Waldo K. Lyon Papers.
- ⁵⁷ Waldo K. Lyon and Allan Beal, *Proposal for Forward Area Logistic Support of Submarines in the Arctic*, 1 August 1983, NHH, Waldo K. Lyon Papers.
- ⁵⁸ 'Detection System in Arctic Revealed', *Halifax Chronicle Herald*, 21 August 1985.
- ⁵⁹ Peter Cowan, 'Tories Admit Foreign Subs Sometimes Intrude in Arctic', *The Ottawa Citizen*, 10 December 1986, A3.
- ⁶⁰ *Arctic Subsurface Surveillance System*, 28 July 1992, DHH, 93/110; This project was ultimately cancelled on the basis of cost.
- ⁶¹ *Arctic Subsurface Surveillance System: Strawman Design*, 28 July 1992, DHH, 93/110, item 415B.
- ⁶² Message to CINCLANDFLT, March 1977, NHH, Waldo K. Lyon Papers.
- ⁶³ *Submarine Cruises* (list compilation date unknown), NHH, Waldo K. Lyon Papers.
- ⁶⁴ Honderich, 99.
- ⁶⁵ Joseph Jockel, *The US Navy, MARCOM and the Arctic* (paper presented to the Conference on Undersea Dimensions, of Maritime Strategy, Halifax, Nova Scotia, Canada, 21-24 June 1989), 4-5, DHH, 39/436.
- ⁶⁶ Naval Submarine League, 'Arctic Submarine Warfare', *The Submarine Review* (July 1983): 4-5.
- ⁶⁷ Arctic Submarine Laboratory, *Historical Timeline* [online], <http://www.csp.navy.mil/asl/Timeline.htm>, accessed 28 July 2012.
- ⁶⁸ *Submarine Cruises* (list compilation date unknown), NHH, Waldo K. Lyon Papers.
- ⁶⁹ *Submarine Cruises* (list compilation date unknown), NHH, Waldo K. Lyon Papers.
- ⁷⁰ Peter Cowan, 'Tories Admit Foreign Subs Sometimes Intrude in Arctic', *The Ottawa Citizen*, 10 December 1986, A3.
- ⁷¹ Peter Cowan, 'Tories Admit Foreign Subs Sometimes Intrude in Arctic', *The Ottawa Citizen*, 10 December 1986, A3.
- ⁷² PJBD, *Journal of Discussions*: 172nd Meeting, 25-27 November 1985, DHH, 82/196.
- ⁷³ Allan Lawrence to Prime Minister Brian Mulroney, 13 December 1985, DHH, 82/196.
- ⁷⁴ Allan Lawrence to Prime Minister Brian Mulroney, 13 December 1985, DHH, 82/196.
- ⁷⁵ *Submarine Cruises* (list compilation date unknown), NHH, Waldo K. Lyon Papers.
- ⁷⁶ M. Allan Beal and Waldo K. Lyon, *Proposal for Forward Logistic Support of Submarines in the Arctic*, 1 August 1983, NHH, Waldo K. Lyon Papers.
- ⁷⁷ Michael Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North* (Vancouver: Douglas & McIntyre, 2010), 77.

- ⁷⁸ Kenneth Curtis and John Carroll, *Canadian-American Relations* (Lexington: Lexington Books, 1983), 12.
- ⁷⁹ Ken Coates et al., *Arctic Front: Defending Canadian Interests in the Far North* (Toronto: Thomas Allen & Son, 2008), 153.
- ⁸⁰ Letter from E.B. Armstrong to the Minister of National Defence, 8 February 1971, DHH, 85/333.069.080.
- ⁸¹ Rob Huebert, 'US Subs do not Threaten our Sovereignty', *National Post*, 21 December 2005, A16.
- ⁸² Rob Huebert, 'US Subs do not Threaten our Sovereignty', *National Post*, 21 December 2005, A16.
- ⁸³ International Court of Justice, *Corfu Channel Case*, 1948.
- ⁸⁴ PJBD Recommendation 52/1, NARA, RG 59, General Records of the Department of State, PJBD Subject File 1940–59, box 6.
- ⁸⁵ PJB Recommendation 52/1, NARA, RG 59, General Records of the Department of State, PJBD Subject File 1940–59, box 6.
- ⁸⁶ COMSUBLANT to USS *Flying Fish*, May 1977, NHH, Waldo K. Lyon Papers.
- ⁸⁷ Secretary of State for External Affairs to Cabinet, *Memorandum to Cabinet, Status of the Arctic Archipelagic Waters*, 1 June 1982, LAC, RG 12, vol. 5561, file 8100-15-4-2, pt. 4.
- ⁸⁸ Canada: Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada* (Ottawa: Minister of Supply and Services Canada, 1987).
- ⁸⁹ Allan Lawrence to Prime Minister Brian Mulroney, 13 December 1985, DHH, 82/196.
- ⁹⁰ PJBD, *Journal of Discussions*: 179th Meeting, 1-4 March 1988, DHH, 82/196.

8

A Northern Nuclear Nightmare? Operation *Morning Light* and the Recovery of Cosmos 954 in the Northwest Territories, 1978

Ryan Dean and P. Whitney Lackenbauer*

The intrusion into Canadian air space of a satellite carrying on board a nuclear reactor and the break-up of the satellite over Canadian territory created a clear and immediate apprehension of damage, including nuclear damage, to persons and property in Canada.

– CANADA, “STATEMENT OF CLAIM TO THE USSR FOR
DAMAGE CAUSED BY SOVIET COSMOS 954”¹

Making an early delivery to Yellowknife Airport the morning of 24 January 1978, water truck driver Peter Pagonis observed “three unidentified flying objects streaking across the dark sky,” their bluish-red tracings leaving an unmistakable impression that this was no ordinary occurrence. “The object in front was the largest, like a huge pencil, spurting an incandescent jet of such pure brilliance” that Pagonis believed it “might be one of those laser beams he had once seen on a television program. The brilliant streaks trailed fiery tails and dove beyond the town in a northeasterly direction.”²

Unknown to Pagonis and other Yellowknifers at the time, Cosmos 954, a Soviet Radar Ocean Reconnaissance Satellite (RORSAT), had malfunctioned and was burning up in the upper atmosphere. Its power plant, a nuclear reactor fuelled with approximately 45.5 kilograms of

* Originally published as a chapter in *The Nuclear North: Histories of Canada in the Atomic Age*, eds. Susan Colbourn and Timothy Andrews Sayle (Vancouver: UBC Press, 2020), 181-206.

enriched uranium-235, had failed to eject from the stricken craft and boost itself into a higher disposal orbit as per its design. During its three-minute burn through the skies of Canada's Northwest Territories, Cosmos scattered radioactive debris from the western edge of Great Slave Lake, east-north-easterly over an eight-hundred-kilometre stretch along the Thelon River, through the barrens, to the region just north of Baker Lake.³

Authorities, quick to respond to a potential "nuclear nightmare," raced to discern, secure, and define the physical, political, and legal risks that the unexpected arrival of Cosmos 954 posed to Canada. A twenty-two-person Canadian Forces Nuclear Accident Support Team (NAST) began to assess radioactive contamination to recover satellite debris that morning.⁴ "The normally easy-going citizens of Yellowknife were startled by the sight of yellow-garbed troops walking the streets, reading radiation meters and taking air samples," Major W.R. Aikman observed.⁵ A nuclear threat required a concerted scientific effort, with military personnel supporting Canadian and American scientists who combed the projected debris area for radioactive wreckage.

The recovery effort, Operation *Morning Light*, unfolded over the next eighty-four days, ultimately spanning twenty-four thousand square kilometres of subarctic and arctic lands in conditions that dipped down below -40°C and recovering 66 kilograms of wreckage (with all but one 17.7-kilogram piece proving to be radioactive).⁶ The response to this unconventional Cold War nuclear threat to North America generated intense national and international interest at the time, and modest attention in its immediate aftermath. The cover of Leo Heaps' book *Operation Morning Light*, published in 1978, carries the hyperbolic tag line: "It was a science-fiction nightmare come true!"⁷ In contrast with official reports that emphasized the diligence of authorities in successfully assessing, containing, and communicating the short-term risk that Cosmos 954 had posed, Heaps emphasized popular fears and dangers associated with potential, lingering radioactivity (of which no evidence was ever produced). Captain Colin A. Morrison's more technical history, *Voyage into the Unknown*, based upon his official research and unpublished reports produced for the Department of National Defence, treats *Morning Light* as a prototypical case study – the first mission of its kind to locate and remove radioactive debris from one country that had fallen onto another country's territory from space – wherein searchers overcame environmental and technological challenges to successfully complete recovery operations.⁸

Although *Morning Light* has not attracted much academic attention (except as a case study in emerging international space law), two recent

studies divide along similar lines as Heaps and Morrison. Our introduction to the publication of a recently declassified Canadian Forces Base (CFB) Edmonton report on *Morning Light* treats it as a successful operation that featured solid bilateral cooperation between Canadian and U.S. experts, a coordinated whole-of-government approach, and the effective adaptation of operational techniques and equipment to challenging environmental conditions. By contrast, geographers Ellen Power and Arn Keeling assert that Operation *Morning Light* is best understood as a contest for power and knowledge via scientific authority, wherein “constant technological failures under northern environmental conditions only increased the uncertainty already inherent in determining radioactive risk.” They indict the Canadian government for failing to communicate risks to Northerners and denying a sufficient role for Northern traditional knowledge to inform cleanup efforts, suggesting that this produced “uncertainties surrounding radiation detection and mistrust of government communication efforts” that left “many northern residents” worried about lingering contamination.⁹ In short, they suggest that the “colonial authority of southern military and scientific experts,” predicated on a Western-centric “regime of perceptibility” based on a universal science (and heavily reliant on technology), failed to apply appropriate methods and, in turn, fomented “doubt and mistrust” over the long-term health and environmental consequences of *Cosmos 954*.¹⁰

Building our analysis around the risks associated with the crash of a nuclear-powered satellite, we contend that Operation *Morning Light* was much more successful than Power and Keeling allege in their selective and speculative reading of the actual evidence. The simple fact that scientists and military operators had to adapt their techniques and equipment to respond to a nuclear contingency in Northern Canada does not render their scientific methods inappropriate or their actions ineffective. As Morrison insisted in 1983, “those involved in the planning and execution of the search for and recovery of *Cosmos 954* were venturing into a new field of operations – a voyage into the unknown – a process that entailed much trial-and-error.” The potential danger to humans, fish, and wildlife in the region gave the operation its driving imperative and demanded a “crisis-management” approach.¹¹ Crisis was averted, however, through tight binational cooperation, systematic scientific monitoring, and deliberate recovery operations. After-action reports that critically evaluated the methods, equipment, and personnel employed during *Morning Light* elucidated how a combination of civilian scientific expertise and military capabilities succeeded in effectively locating and recovering the remnants of a downed nuclear-powered satellite scattered across a

frigid, subarctic environment. While Keeling and Power build a critical case around *possible* negative environmental and human legacies, they seem to downplay a preponderance of verifiable evidence that points to the opposite outcome: an effective response to a practical nuclear threat that, rather than eroding public confidence, successfully mitigated risks in a timely and cooperative manner.

Nuclear histories, historian Itty Abraham notes, are dominated by a discourse of control that has narrowed the focus to national efforts at non-proliferation and less on the implications of nuclear programs more broadly, including the scientific-technological underpinnings of these programs¹² and the national (and, in the case of *Morning Light*, binational) response systems set up to deal with nuclear disasters and accidents. While accidents at the SL-1 (1961), Three Mile Island (1979), Chernobyl (1986), and Fukushima Daiichi (2011) power plants, as well as those associated with nuclear-powered submarines, have been subjected to significant analysis and debate, the application of science and technology to the detection and cleanup of small nuclear incidents has received less attention. We argue that, by adapting responses that had been developed in southern laboratories and offices and devised for global application to an austere Arctic environment, Operation *Morning Light* demonstrates the transferability and application of Cold War applied science in the Canadian North. While civilian scientists and military operators had to render the Arctic scientifically “legible”¹³ to identify and clean up nuclear debris, this knowledge and concomitant use of technology was not used to reshape Arctic environments during the operation and in its aftermath.¹⁴ Instead, an immediate joint Canadian-American effort, involving multiple government agencies, was coordinated to protect the landscape and Northern peoples from radionuclide contamination. In our assessment, *Morning Light* offers an important case study in practical government action to respond to nuclear risk and prevent toxic legacies – environmental, diplomatic, or between Northern residents and the Canadian government.

Setting the Context

The United States became aware that Cosmos 954 was in trouble in late October 1977. Fourteen metres long with a mass of 3,500 kilograms, the nuclear-powered RORSAT was built around a powerful X-band radar that could look through thick cloud layers to scan the world’s oceans for naval vessels. The small Romashka reactor on the spacecraft, which was powered by 90 percent enriched uranium-235 embedded in carbide and surrounded by a graphite moderator, also allowed the satellite to send its observations back to Moscow or directly to Soviet naval units and possibly

even Tu-22 “Backfire” bombers.¹⁵ Given that this mission had obvious implications for American security in a Cold War context, U.S. officials noted its launch on 18 September 1977 with interest. Five weeks later, the North American Air Defence Command (NORAD)¹⁶ noted Cosmos 954’s slowly decaying orbit and began updating plots of when and where the satellite would re-enter the atmosphere. Most of these calculations were done at the Lawrence Livermore National Laboratory by engineer Milo Bell and mathematician Ira Morrison, supported by engineer Robert Kelley. The trio had access to the highly sophisticated Control Data Corporation 7600 supercomputer, with its C-shaped frame stretching twenty feet and filling an entire room at the laboratory.¹⁷ The problem was clear: “What does one *do* about a live nuclear reactor re-entering the earth’s atmosphere aboard a Soviet surveillance satellite?” Gus Weiss, a special assistant to the secretary of defense, explained how “a quick scan of literature showed no textbook answer, nor even a textbook question. It remained for the National Security Council [NSC] Staff to put together a group to cope with the problem.”¹⁸

On 19 December, the NSC formed a working group (the Ad Hoc Committee on Space Debris) to prepare contingency plans and prepare to mount a quick search-and-recovery operation of Cosmos 954 if needed, thus birthing Operation *Morning Light*. Contributing agencies included the Central Intelligence Agency (CIA), the Department of Defense (DoD), the Department of Energy (DoE), the State Department, the Environmental Protection Agency (EPA), the Federal Preparedness Agency, and the Office of the Attorney General. The NSC placed the DoE’s nuclear emergency response capabilities on alert “to assist in the protection of public health and safety should radioactive debris from Cosmos 954 come to earth in the United States.” This included organizations such as the Accident Response Group (ARG) and the Nuclear Emergency Search Team (NEST), which had the expertise and equipment necessary to find and recover radioactive materials. Due to the “uncertainty in determining when or where (in the world) Cosmos 954 would reenter,” experts anticipated “that there was no preventative or preparatory action that could be taken by the public.” Subsequently, both the American public and the United States’ allies were kept in the dark until experts could plot a more accurate projection of Cosmos 954’s return.¹⁹

In early January, the satellite’s orbit decayed precipitously. Updated calculations estimated a re-entry date of the twenty-fourth of that month, but *where* the satellite would crash remained hazy. American authorities summoned the Soviet ambassador to secure information on the

radioactive hazard that Cosmos 954 posed. The USSR's response was rather sparse, noting that the power plant on the satellite was "explosive-proof" and had been designed to burn up when it entered denser layers of the atmosphere. Nevertheless, the depressurization (for unclear reasons) that had caused the satellite to lose control meant that some destroyed parts of the plant could still reach the earth's surface, and "in that case an insignificant local contamination may occur in the places of impact with earth which would require limited usual measures of cleaning up." One U.S. official remarked that he was not sure what "'usual measures of cleaning up' a reactor crashing in from outer space might be, and there was also some ambiguity in the meaning of 'explosive-proof.'"²⁰

By this time, computer modelling discerned that the wavelike orbital path of the doomed satellite overflew Australia, Britain, Canada, Japan, and New Zealand, and the United States notified its allies accordingly.²¹ Canada first learned that Cosmos 954 could crash in its territory on 19 January, and the Department of National Defence alerted all regional commanders and the NAST of the impending threat the following day. Air Command Headquarters alerted CFB Edmonton base commander Colonel D.F. Garland on 23 January that Cosmos would be entering Edmonton's Search and Rescue Region the following day, and the NAST was informed and placed on two-hour standby. At this time, the Prime Minister's Office notified several of the civilian departments of the threat that the satellite posed to the country and of their responsibilities in the response effort. This meant that many of the key agencies and actors who became involved had less than twenty-four hours' notice, and some did not receive notification until after the satellite had crashed.²²

As soon as American experts confirmed Cosmos 954's re-entry over the Northwest Territories on the morning of 24 January, President Jimmy Carter contacted Prime Minister Pierre Trudeau and offered American assistance. Trudeau immediately accepted. The principal mission for the U.S. Nuclear Emergency Search Team was to help the Canadian government locate radioactive debris. Accordingly, the team enlisted American experts to provide technical assistance in calculating the re-entry of Cosmos 954 and the ballistics properties that various pieces of it would likely exhibit in their fiery plunge back to earth. This involved sophisticated re-entry calculations and computer modelling, establishing the perimeters of the search area, and estimations of where larger pieces of debris would land. The NEST also operated aerial measuring equipment and assisted with ground recovery activities. At the request of the Defense Department, the Department of Energy provided two gamma ray spectrometers and operating personnel, who arrived in Edmonton on

24 January to install their equipment on Canadian Hercules aircraft. Canada provided the technical assistance to mount the detection equipment onto the aircraft, as well as on-site logistics support such as providing the NEST with military clothing for subarctic operations.²³

Despite having received little to no warning, Canadian civilian scientists responded immediately and began arriving in Edmonton on the mid-morning of 24 January – at roughly the same time as the American NEST, which had had seven weeks of forewarning and preparation. The first of these scientists was Dr. Bob Grasty of the Geological Survey of Canada (GSC), whose expertise in aerial surveying for naturally occurring uranium was mobilized to detect Cosmos 954's highly enriched uranium-235 core. A GSC gamma ray spectrometer designed for uranium exploration and mapping was quickly shipped, along with Grasty, from Ottawa to Edmonton to enable the search.²⁴

NORAD had provided Operation *Morning Light* with projections of Cosmos 954's probable debris field between Great Slave and Baker Lakes, delineated as an area eight hundred kilometres long and fifty kilometres wide. The first phase of the operation called for CC-130 Hercules aircraft, specially equipped with gamma ray spectrometers to detect radiation emitted from the surface, to fly a grid pattern one thousand feet above ground level over the suspected satellite crash area.²⁵ While the pilots focused on carefully flying their intended search tracks under difficult conditions, "back in the cargo compartment, the [NEST] scientists took turns watching several needles as they slowly swayed up and down across a piece of graph paper, waiting for the telltale swing that would indicate a hit."²⁶ The NEST members operating these devices quickly began registering "hits" along the search area, which were recorded on data tapes and then fed into NEST computer vans at Yellowknife and Baker Lake for analysis. "Each hour of search flight time for each of the C-130s created four hours of computer analysis time, creating a major assessment backlog," the U.S. Department of Energy's official report recounted.²⁷ "Hits" would then be located on navigation charts and helicopters fitted with detection equipment sent to these sites to precisely locate the radioactive source. One helicopter would drop a brightly coloured streamer on the suspect site, and a second helicopter carrying a three-person recovery team would follow to inspect the area on the ground and recover any radioactive materials.²⁸

Sovereignty and Canada-U.S. Cooperation

Interestingly, the dominant historiographical theme emphasizing Canadian sensitivity over U.S. "threats" to Arctic sovereignty from the Second World War onward is conspicuously absent in the case of

Operation *Morning Light*.²⁹ While wartime defence projects such as the Alaska Highway, Canol pipeline, and various remote airfields had prompted concerns about U.S. designs on parts of the Canadian North, and Cold War defence projects such as the Distant Early Warning (DEW) Line had fed popular concerns about the erosion of Canadian sovereignty,³⁰ media coverage and internal government memoranda related to *Morning Light* are remarkably free of this usual worry. Instead of construing an American presence in the Canadian North as a *risk*, Canadian officials embraced it as an operational necessity and benefit. The American contribution reached its zenith two weeks into the operation, when 120 specialists in various fields were participating. Author Leo Heaps, in his dramatic account, observed:

When the Americans went into full gear with their immense back-up resources, there was very little in the world that would be able to equal them. The motive of competition, of sensitive pride where the Americans were concerned, was all one-sided. Canadians are traditionally apt to have some acute feelings in these matters. However, this was an emergency and the clear-headed Garland and his team appreciated the assistance. The American scientists and technicians stayed out of sight in spite of the urgings of their public relations man, allowing the Canadian scientists and military to make all the announcements. They would have their turn when they arrived home.³¹

In the face of a tangible Cold War nuclear threat, a joint effort was politically and popularly acceptable to complete the search, recovery, removal, testing, and cleanup of radioactive fragments. Rather than the United States being seen as encroaching on Canadian sovereignty, in this case a Soviet satellite had violated it – and a combined Canada-U.S. effort was well justified to assess the implications.³²

When the Department of Energy eventually published its official “non-technical” summary of the operation, it highlighted *Morning Light* as an “example of international cooperation for the protection of the health and safety of the population of North America.”³³ An internally directed Canadian report also affirmed that the two countries’ intimate cooperation during the operation proved seamless and effective. “The American agencies provided excellent technical support (equipment and equipment employment) plus the all important scientific expertise for re-entry, health physics and radioactive material recovery advice and support,” it highlighted. From an organizational perspective, this technical support “melded well into an efficiently functioning team that performed the job safely.”³⁴ Furthermore, as more Canadians arrived on

the scene, the Americans drew down their assistance as planned.³⁵ NEST expertise proved to be tailor-made for the Cosmos 954 search. "The much smaller resource base in Canada did force some adjustments on the American time accomplishment expectations," an official Canadian report noted. "Beyond this ... without reservations, this was an excellent, productive exercise in international cooperation."³⁶ In the end, the Canadians were saddened to see their American counterparts go.³⁷

"There was no historical precedent for Operation *Morning Light*," Lieutenant-General (retired) William Carr noted afterwards. "From my vantage point as Commander, Air Command during the events recorded here, I was privileged to see the spontaneous cooperation which invariably surfaces when Americans and Canadians, under pressure, work toward a common goal."³⁸ Supporting this assessment, the most systematic Canadian report explained that individual responsibilities assigned to Canadian and American participants were well defined from the onset. "The two national teams of the Task Force worked extremely well together ... [in] a common purpose easily and productively with amazingly few problems," it extolled. "The blend of skills each side brought to the task was essential to the other side's requirement and success, which is an exceedingly important factor. Without reservation, this was an excellent, productive exercise in international cooperation."³⁹

For their part, the Americans participating in Operation *Morning Light* concluded that "the Canadians were outstanding hosts, both in technical support and personnel consideration. This likely represents the best of international assistance conditions that we could ever expect to encounter; many other situations could be far from ideal."⁴⁰ While the Canadians provided the bulk of personnel and logistics, the "previous specialized experience of the U.S. team with nuclear radiation search and measurement over large areas was a key *Morning Light* resource; the operation could not have been completed as expeditiously without it."⁴¹ Accordingly, this case study seems to reinforce our recent work that recasts the Canada-U.S. Cold War relationship in the Canadian North as one of "premier partners" who effectively collaborated on an operational level rather than as competitors either threatening or defending sovereignty.⁴²

Northern Popular Perceptions and Scientific Discernment of Radioactive Risk

Cosmos 954 focused the eyes of the world on the Canadian North – and on the actions of scientists and military personnel in assessing and addressing nuclear risk. International and national Canadian media

attention initially fixated on the satellite's nuclear core. Had it survived re-entry, and, if so, what threat did it pose? The *New York Times* posed the fundamental question on 6 February 1978: "Is part of the satellite's reactor still out there in the frozen wilderness, undetectable from the air, buried until the summer thaw, but nevertheless emitting dangerous radiation?"⁴³ Coverage also emphasized the precedent-setting nature of the response, spanning a search area the size of Switzerland or Austria, with frigid, rugged conditions pitting "man against nature" in a primordial struggle "just a dog-sled away from the North Pole."⁴⁴ The Canadian national press also situated recovery efforts in a Cold War context. Although some overzealous stories wrongly ascribed to the satellite an offensive capability to shoot down other satellites with lasers, more sober critiques highlighted the Soviet Union's refusal to disclose substantive information about the satellite's reactor core – despite initial promises to lend "full cooperation" to recovery efforts. By withholding valuable information about the design and nuclear fuel, the Soviets thus protected their intellectual property – even when their space vehicle crashed onto the Canadian tundra. When Russian authorities refused to acknowledge that the radioactive debris came from one of their satellites (thus placing potential legal implications over environmental and human safety), Canadian Minister of National Defence Barney Danson told the USSR to "grow up" and share technical information – although he conceded that the Soviets were "somewhat uneasy about intelligence information which could be collected as the satellite fragments are analyzed."⁴⁵

The major risk posed by Cosmos 954 was that its reactor or part of the uranium-235 core would survive atmospheric re-entry and make landfall, posing a lethal radiation threat to any nearby Canadians and the surrounding environment. Officials had to confirm Soviet assurances that the reactor would disintegrate in the upper atmosphere as per its design. About 250 members of the Canadian Armed Forces mobilized for Operation *Morning Light*, alongside 120 Americans (mostly NEST specialists) and thirty scientists from the Atomic Energy Control Board (AECB), the Geological Survey of Canada, and the Department of Energy, Mines and Resources. The latter were responsible for managing the airborne search for Cosmos 954 wreckage: after scientists aboard CC-130 Hercules aircraft located radioactive hotspots, helicopters would deliver scientists to confirm and recover the debris on the ground.⁴⁶

The recovery of the largest piece of debris, known colloquially as the "stovepipe" and identified by aerial search on 1 February, exemplified this method. The head of the search team recounted to excited reporters that it was evident "something [had] really gone through the ice at high

speed.” Paul Murda, the leader of a five-man American scientific team that analyzed the object, described it as “sort of like a cylinder that got smashed,” with what “looks like structural tubing” sticking out the ends.⁴⁷ Fortunately, it was not radioactive, which made its detection from the air a stroke of luck. Another example of this search method occurred three days later when another recovery team – wearing their trademark thick yellow coveralls, parkas, and Arctic boots, with radiation detectors hanging from their waists – found some of the most radioactive material: a clutch of beryllium rods and cylinders partially embedded in the snow and ice.⁴⁸ When the recovery team, led by AECB members Tom Robertson and Wick J. Courneya, cautiously approached the debris, their “Geiger-counter readings exceeded 100 roentgens per hour.”⁴⁹ Courneya, a health physicist, put this level of radiation into perspective in a later interview. “If a person held [an object measuring some 200 roentgens] for one hour, he would probably get ill,” he explained. “If a person held it for two hours, he probably would die.”⁵⁰ Accordingly, it was standard operating procedure after every mission to check recovery teams and aircrew for radiation, and “any item of clothing which produced a reaction on the meters was immediately removed.”⁵¹

As it became increasingly apparent that neither Cosmos 954’s reactor nor a large quantity of its uranium fuel survived atmospheric re-entry – thus dramatically reducing the overall risk – scientists turned to broadly monitoring radiation levels by collecting ground samples along the debris field. This surveying was conducted in two distinct phases under the responsibility of the AECB.⁵² Phase I ran from 24 January to 20 April and focused on “all known [areas of] human habitation including towns, cabins and camps,” along with “transportation routes of all kinds.”⁵³ Scientists and soldiers conducting these surveys were equipped with instrumentation capable of detecting radiation fields of about one to three micro-roentgens per hour.⁵⁴ The overall purpose of this ground search was to determine the density of the radiation dispersed across the search area and to analyze its spread and environmental impact.

While officials were worried about popular paranoia emanating from the “first live nuclear object (spewing deadly nuclear radiation) tumbling in from the cold depths of outer space,”⁵⁵ our analysis of regional newspaper coverage suggests that Northerners did not overreact. Jarvis Jason, the manager of a fried chicken outlet in Yellowknife, told a reporter on 26 January that the nuclear fallout threat “doesn’t really bother me at all. We’ve had these arsenic scares and things like that. After all, we’re Yellowknifers.”⁵⁶ More generally, the *Yellowknifer* newspaper editorialized in February 1978:

It appears that people in the North, and particularly Yellowknife, have done it again. Acted in a peculiar manner. They did not fall apart and get hysterical and start evacuating the city when this newsworthy satellite entered our area. What did they expect the citizens to do? ... Do you think that it would pose too much of a problem to those Southerners to realize that just to come up here to live – many in small outlying lonesome settlements – takes a certain kind of person – self-sufficient with somewhat fatalistic outlook and plenty of plain intestinal fortitude. Please, you Southerners, stop expecting us to react in a predictable manner – by now – at least the media – should know we are different.⁵⁷

Yellowknifer editor Sig Sigvaldason, already disillusioned with the federal government over its treatment of mine-related arsenic contamination in Yellowknife,⁵⁸ was skeptical of official reports. Downplaying the threat to human health, he instead trumpeted the economic boost that the influx of authorities and outside media brought to his community. “The Russians have contributed more to the economy of the Yellowknife area in a few days,” he quipped, “than the Federal government does in a year.” One of his stories suggested that “the only fallout one could observe so far were the media types who filled every available hotel space.”⁵⁹

While the debris area was large, barren, and sparsely populated, authorities were highly aware that it was not an empty “wasteland” but a homeland for humans.⁶⁰ “The inhabitants of the Northwest Territories in the path of the Cosmos 954 Satellite were concerned about their safety and it was necessary to undertake search and recovery operations so that the inhabitants could be assured that all debris dangerous to their health had been recovered,” an official summary noted. Dan Billing, the chief of emergency services for the Government of the Northwest Territories, explained:

There are approximately 10,000 persons who reside in the “hit-zone.” The municipal councils of the Towns of Fort Smith, Hay River, Snowdrift, Fort Resolution and Pine Point expressed great concern for their citizens about the danger of the radio-active debris in their respective areas. Citizens['] committees were established in some of these municipalities for the purpose of expressing their concern about their safety. Signs were erected in these municipalities alerting the residents to report any sightings of unusual debris and to warn the citizens that this debris may be dangerous. Persons residing around Great Slave Lake were concerned that the drinking water and fish were unfit for human consumption. Residents were concerned that the caribou might

be unsafe for human consumption. Residents restricted their normal use of the territory for fear of contact with radio-active material. An area north of the Town of Snowdrift was restricted from any unauthorized travel for approximately one month.⁶¹

Operation *Morning Light* crews completed foot searches for radioactive material in the municipalities and around hunting and fishing lodges, finding radioactive debris in several of these locations. Although distance and subarctic operating conditions complicated logistics, authorities were confident they had found all the Northern civilians in the search area by early 28 January and advised them of the possible hazards.⁶²

Officials were particularly anxious about how they would explain the situation to the region's Indigenous inhabitants. "There was a common concern and generally not enough known about this strange element ... translated from English to Chipewyan [as] 'poisonous,'" reporter Robert Blake explained. "There are no words in Chipewyan to adequately describe radioactivity, gamma ray sweepers and the like."⁶³ When a NAST team (in their trademark suits) first flew to the Chipewyan (Dene) community of Snowdrift (now Łutsel K'e) without advance notice in late January, local residents scattered. The town council held an emergency meeting, passing along fears to the Northwest Territories commissioner. Canadian Northern Region Headquarters commander Brigadier-General Ken Thorneycroft flew to the village the next day to convene a public meeting, where he explained what was happening and reassured local residents that no radiation had been detected near their community.⁶⁴ Afterwards, a local councillor noted that "fear, 21st Century style, [was] easing its grip on the hunters and trappers in the community."⁶⁵ Although local concerns never entirely dissipated, *Morning Light's* coordinated response offered credible reassurance to Northerners that their safety was of paramount importance, and the search and recovery operations for debris appropriately addressed the most serious threats to human and environmental health.⁶⁶

Authorities also responded to Northerners' observations of things out of place in an environment that they knew intimately. A prime example occurred on 10 March, when the RCMP detachment at Cape Dorset relayed a report to Edmonton from a twenty-five-year-old Inuk seal hunter. Twenty-five miles northwest of Cape Dorset, the man had observed an eighteen-foot crater in lake ice that "was at least five feet thick and big chunks of it were flung hundreds of feet away like toy blocks."⁶⁷ Although Cape Dorset was located at the extreme end of Cosmos 954's calculated debris field, authorities took the report seriously. Within three days, a CC-130 airlifted a CH-135 Twin Huey to Cape Dorset, and a

ground team of scientists specially equipped with underwater probes was dispatched to measure radiation levels in the water beneath the sea ice. After careful analysis, the scientists discerned that the phenomenon was a natural occurrence unrelated to the Cosmos crash.⁶⁸ This incident and others like it showed that authorities acted upon Northerners' local knowledge, even though non-specialists were unlikely to have the expertise or ability to discern radioactive contamination (as they might other forms of persistent pollutants).⁶⁹

By early March, aerial surveys and Phase I ground surveys led scientists to conclude that people living in the affected area had little to fear from ongoing radiation.⁷⁰ A Phase II ground survey, conducted from 14 July to 14 October, reassessed the affected areas after snow and ice had disappeared. Most of this phase was devoted to recovering some 3,500 tiny particles of 90 percent enriched uranium, the remnants of Cosmos 954's reactor fuel, which if ingested by a person would offer a radiation dose akin to a "medical X-ray examination of the gastric area." Furthermore, the particles were steadily weakening in radioactivity as time passed. By September, scientists found that these particles emitted radiation at levels only one-fifth of what they had been in initial measurements.⁷¹ Nevertheless, authorities continued to respond to Northerners' observations and concerns. For example, a family reported finding dead fish floating at Louis Lake in the Northwest Territories on 14 October and suggested that this may have been caused by radiation from Cosmos 954 debris. Although Louis Lake was 130 miles beyond the established debris zone, authorities kept an open mind and dispatched a plane to collect samples. When brought to Winnipeg for analysis, the fish were found to be completely clean of radioactivity.⁷² Northerners' concerns were treated seriously and acted upon, and this fed into a growing sense of confidence that the threat was abating.

In 1979 and 1980, government scientists continued environmental monitoring for radioactivity and restored public confidence that the risk had dissipated. Caribou from across the affected area were harvested and sampled for contamination, as were hundreds of fish from across all species over a period of several months.⁷³ No radionuclides were detected that related to satellite debris.⁷⁴ Radioactive analysis of drinking water confirmed that runoff did not carry residual particles from Cosmos 954 into water supplies. Furthermore, NAST members and AECB scientists ran tests on equipment and facilities that had been used to handle Cosmos 954 debris and found radiation levels to be within acceptable limits.⁷⁵

In the end, Canadian and American scientific crews recovered about sixty-five kilograms of satellite material.⁷⁶ The lead effort in recovering,

storing, and disposing of the radioactive debris fell to the AECB,⁷⁷ which contracted the Whiteshell Nuclear Research Establishment (WNRE) to analyze and store recovered debris.⁷⁸ Studies of the radioactive fragments quickly yielded debris of particular interest, including a highly radioactive steel “hotplate” determined to be part of the reactor container, beryllium “slugs” that were thought to be part of Cosmos 954’s reactor core, and a series of small cylinders in pristine condition that may have been part of the reactor control device. WNRE staff quickly determined that the reactor core had broken up and pieces of it were distributed across the search area. By analyzing the recovered fuel, staff determined the approximate size and power of the Romashka-type reactor, discerning that the power plant produced an output of 132 kilowatts and would “have left in excess of 13,000 Curies of radioactivity 90 days after re-entry.” WNRE concluded that “much of this [radioactivity] may never have reached the ground.”⁷⁹

The extensive scientific monitoring of the affected territory gave authorities confidence in concluding that the radioactive risk posed by Cosmos 954 was no longer a threat to Canadians or their environment.⁸⁰ While remaining radioactive particles could pose a hazard to anyone who came in direct contact with them, this threat was mitigated by Northern demographics (a small population distributed over a large area), the recovery efforts in and around populated areas, the natural behaviour of the particles, and their rapid radioactive decay. Indeed, scientist F.R. Campbell’s comments on one draft report suggested that such definitive conclusions might themselves worry Canadians. “I find the tone of the report ... [leaves] the impression that we tried too hard and too often to convince the reader that we had done a great job and the risks are trivial,” Campbell noted. “While these things are largely true, I’m afraid we ‘protest too much’ and raise suspicions. The facts, I believe, speak for themselves; we would be better not to belabour the point.”⁸¹

Legal Risks: Liability under International Law

A professional, systematic scientific effort was also essential to secure compensation from the Soviet Union for scattering radioactive satellite debris across Canadian territory. Initial Canadian diplomatic overtures focused on securing information about the design of Cosmos 954, primarily to confirm that the reactor had disintegrated during atmospheric re-entry. On 24 and 27 January, the Department of External Affairs posed questions to the Soviet Embassy about the nature and amount of reactor fuel, as well as the type of reaction, reflector, and shielding, all of which could have informed the type of detection equipment required to find local debris before it decayed to a level that

made it difficult to distinguish from the surrounding environment. Furthermore, the chemical or alloy composition of the fuel would help to determine the probabilities of dispersal and “general contamination of large tracts of land and the requirement for extensive monitoring of flora and fauna.”⁸²

The Soviets proved highly reluctant to pass along any substantive information about the nuclear-powered satellite,⁸³ dedicating their energy to protecting intelligence about its design and managing the legal risk that they faced under the 1972 Convention on International Liability for Damage Caused by Space Objects.⁸⁴ Although Cosmos 954 was the seventh nuclear-powered vehicle to return to earth, it represented the first example of one inadvertently crashing onto another state’s territory and would set a precedent as the first operationalization of anticipatory international law.⁸⁵ External Affairs decided that “it would seem to be of no advantages to Canada in political, legal or intelligence terms to have their [Soviet] experts or technicians involved in the operation.”⁸⁶ Accordingly, Canada rebuffed an initial Soviet offer to send technical teams to assist in the recovery of Cosmos 954 debris *after* it had been located. Given the Cold War context, Canadian legal officials were skeptical, concluding from a Soviet aide-mémoire that the USSR “may be laying basis for denying ownership of debris ... [by] dismiss[ing] photos that have appeared in press as being of things even he could have put together in his backyard. He seemed to hint too that once debris [was] removed from [a] spot there could be some question about its authenticity.”⁸⁷ For their part, after the initial exchange, the Soviets showed no interest in recovering debris or sharing any information on Cosmos 954’s design and enriched uranium fuel.⁸⁸

On 8 February 1978, Canada served notice to the Soviet Union of intended legal action to “restore” the environment “to [a] condition which would have existed if the damage [from Cosmos 954] had not occurred.”⁸⁹ This included reimbursement for the costs of search, recovery, and “clean-up of radioactive satellite debris as to prevent or mitigate future injuries to persons or contamination of the environment.”⁹⁰ The Canadian claim described as damage to property the “deposit of hazardous radioactive debris from the satellite throughout a large area of Canadian territory, and the presence of that debris in the environment rendering part of Canada’s territory unfit for use.” Because the territory over which the debris had scattered was largely uninhabited, the degree to which it was “unsafe” was legally ambiguous.⁹¹ In response, the USSR argued that when Canada declined its offer of assistance, it forfeited any right to compensation.⁹² Over time, External Affairs was quietly concerned that a steady stream of

scientific papers demonstrating Operation *Morning Light's* success in finding, defining, and mitigating the radioactive risk to civilians might jeopardize Canada's upcoming legal claim against the USSR or the amount of reparations that it might secure.⁹³

Ultimately, the legal risk was resolved through diplomatic channels. "In the Cosmos 954 claim, Canada had to meet the argument that the Soviet satellite did not cause direct injury to people or damage to property," legal scholars Edward G. Lee and David Sproule explained. "While no persons were directly injured by the debris and, strictly speaking, the land was usable, the public nevertheless would have faced a health risk had the Canadian government not undertaken decontamination measures."⁹⁴ Canada presented a bill of \$6.1 million to the Soviet Union in 1979, of total estimated costs of nearly \$14 million for the recovery and cleanup effort.⁹⁵ After three rounds of negotiations, the countries eventually agreed to a lump sum settlement of \$3 million in April 1981.⁹⁶ "The text of the protocol gave no indication of a basis for agreement," legal scholar Joseph Burke observed in its aftermath. "As a result, the resolution amounts to no more than a tacit admission by the Soviets of their responsibility to the Canadians in the wake of the Cosmos 954 crash."⁹⁷

Conclusions

When Cosmos 954 fell to earth on 24 January 1978, the radioactive debris from its nuclear reactor posed a particular risk to Northern Canadians and their homeland. Amid tremendous uncertainty, officials had to decide how to address a potentially acute threat to public safety, acknowledging the location and scale of an unintended but tangible nuclear threat. Nuclear contamination in a remote swath of Arctic and subarctic in Canada's Northwest Territories forced scientists to apply and adapt techniques to identify and manage radionuclide contamination. Canada and the United States were forced to discern the steps needed to mitigate the nuclear risk. Fortunately, the absence of long-term radionuclide contamination of air, water, or food supplies has allowed this case study to fade from popular memory. Despite the acute sense of risk perceived at the time, Operation *Morning Light* has also faded into the broader background of Canada's Cold War history. As a successful operation predicated on effective Canada-U.S. cooperation that dealt with an unintended Cold War incursion into Northern Canada, it lacks the sensationalism of debates over nuclear weapons on Canadian soil or U.S. threats to Canada's Arctic sovereignty. Instead, it serves as a modest reminder of the global reach of nuclear histories and the various scales at which nuclear incidents required emergency responses.

Lying at the intersection of nuclear and technological histories, Indigenous-Crown relations, environmental history, and scientific practice, it is surprising that Operation *Morning Light* has attracted so little academic attention. Less surprising, however, are differences in interpretation of what the operation meant in terms of risks and responsibilities. In our assessment, the Canadian government demonstrated that its highest priority was protecting the health, safety, and security of Canadians in the face of a nuclear threat. It did so appropriately and proportionately, working in concert with the United States to effectively identify, recover, remove, test, and clean up radioactive debris on Canadian territory. The scenario revealed the permeable boundary between earth and outer space, as well as the Cold War's global nuclear reach, extending into the far reaches of the Canadian North.

Notes

¹ *International Legal Materials* 18, 4 (July 1979): 905.

² Leo Heaps, *Operation Morning Light: The True Story of Canada's Nuclear Nightmare* (Toronto: Random House, 1978), 50.

³ U.S. Department of Energy (DoE), *Operation Morning Light: Canadian Northwest Territories, 1978 – A Non-Technical Summary of United States Participation* (Washington, DC: Department of Energy, September 1978), 67, 71; and "The Unscheduled Return of Cosmos 954," *Science News* 113, 5 (2 April 1978): 69.

⁴ DoE, *Operation Morning Light*, 8, 11.

⁵ Major W.R. Aikman, "Operation Morning Light," *Sentinel* 14, 2 (1978), reproduced in Adam Lajeunesse and P. Whitney Lackenbauer, eds., *Canadian Armed Forces Arctic Operations, 1945–2015: Historical and Contemporary Lessons Learned* (Fredericton: Gregg Centre for the Study of War and Society, 2017), 247. Aikman noted that "tension dropped when negative results were announced." While Yellowknife was spared from contamination, analysts projected that massive radioactive objects could survive re-entry and reach the earth's surface further down range toward Baker Lake. DoE, *Operation Morning Light*, 12n.

⁶ "Canada Wants Cash for Cosmos 954 Cleanup," *Science* 203 (16 February 1979): 632–33; W.K. Gummer, *Summary of Cosmos 954 Search and Recovery Operation* (Ottawa: Atomic Energy Control Board, January 1979), 1; and W.K. Gummer, F.R. Campbell, G.B. Knight, and J.L. Ricard, *Cosmos 954: The Occurrence and Nature of Recovered Debris* (Ottawa: Minister of Supply and Services Canada, 1980), iii.

⁷ Heaps, *Operation Morning Light*.

⁸ C.A. Morrison, *Voyage into the Unknown: The Search and Recovery of Cosmos 954* (Stittsville, ON: Canada's Wings, 1983), 120. For more on satellite failures in general, see Les Johnson, *Sky Alert! When Satellites Fail* (Chichester: Springer-Praxis, 2013).

⁹ Ellen Power and Arn Keeling, "Cleaning Up Cosmos: Satellite Debris, Radioactive Risk, and the Politics of Knowledge in Operation Morning Light," *Northern Review* 48 (2018): 81.

¹⁰ *Ibid.*, 90, 101-02.

¹¹ Morrison, *Voyage into the Unknown*, 4.

¹² Itty Abraham, "The Ambivalence of Nuclear Histories," *Osiris* 21, 1 (2006): 49-65.

¹³ On legibility and Arctic environments during the Cold War, see Trevor J. Barnes and Matthew Farish, "Between Regions: Science, Militarism, and American Geography from World War to Cold War," *Annals of the Association of American Geographers* 96, 4 (2006): 807-26; and Matthew Farish, *The Contours of America's Cold War* (Minneapolis: University of Minnesota Press, 2010).

¹⁴ On this theme, see, for example, Liza Piper, *The Industrial Transformation of Subarctic Canada* (Vancouver: UBC Press, 2010); Dolly Jørgensen and Sverker Sörlin, eds., *Northscapes: History, Technology, and the Making of Northern Environments* (Vancouver: UBC Press, 2013); P. Whitney Lackenbauer and Matthew Farish, "The Cold War on Canadian Soil: Militarizing a Northern Environment," *Environmental History* 12 (2007): 921-50; and Matthew Farish, "The Lab and the Land: Overcoming the Arctic in Cold War Alaska," *Isis* 104, 1 (2013): 1-29.

¹⁵ Jeffrey T. Richelson, *Defusing Armageddon* (New York: W.W. Norton, 2009), 48-50; Gus W. Weiss, "The Satellite That Came into the Cold: The Life and Death of Cosmos 954," *CIA Historical Review Program* 22 (1978): 1; Andrew Brearley, "Reflections upon the Notion of Liability: The Instances of Kosmos 954 and Space Debris," *Journal of Space Law* 34 (2008): 294.

¹⁶ NORAD was renamed the North American Aerospace Defence Command in 1981.

¹⁷ "Operation Morning Light: Department of National Defence Final Report," 1, ATIP A-2015-00308, Directorate of History and Heritage (DHH), Department of National Defence; DoE, *Operation Morning Light*, 66; and Richelson, *Defusing Armageddon*, 53.

¹⁸ Weiss, "The Satellite That Came into the Cold," 1. See also unclassified cable, Bureau of Oceans and International Environmental and Scientific Affairs, Department of State, to NATO Posts Tokyo, 24 January 1978, https://wikileaks.org/plusd/cables/1978STATE019297_d.html.

¹⁹ DoE, *Operation Morning Light*, 2.

²⁰ Weiss, "The Satellite That Came into the Cold," 3-4. Heaps noted that Anatoly Dobrynin, a former aerodynamic engineer, would inform the U.S. National Security Adviser only that "Cosmos 954 was not an atomic bomb": *Operation Morning Light*, 27. On the uncertainty over the depressurization, see "A Tass Correspondent Interviews Academician L.I. Sedov," *Izvestia*, 5 February 1978, 3, quoted in Alexander Cohen, "Cosmos 954 and the International Law of Satellite Accidents," *Yale Journal of International Law* 10 (1984): 80.

²¹ Weiss, "The Satellite That Came into the Cold," 4. While the countries that received information initiated their own preparations to deal with Cosmos 954, the U.S. Department of Energy's field units were ready for deployment by 22 January, with all personnel on a two-hour alert and NEST equipment loaded onto four Air Force C-141 Starlifter aircraft in Washington, DC, California, and Nevada. DoE, *Operation Morning Light*, 2-3, 5; and Aikman, "Operation Morning Light," 6.

²² Gummer, *Summary of Cosmos 954 Search and Recovery Operation*, 2; and Ryan Dean and P. Whitney Lackenbauer, eds., *Operation Morning Light*, Arctic Operational Series No. 3 (Antigonish: Mulroney Institute of Government, 2018), 63.

-
- ²³ DoE, *Operation Morning Light*, 8-9, 14-17, 62; and Aikman, "Operation Morning Light," 6. Canada's first contribution to this bilateral collaborative effort was meteorological reports to enhance re-entry modelling.
- ²⁴ Aikman, "Operation Morning Light," 6. On the spectrometer, see Barb Livingstone, "In Search of Radiation in Barren Land," *Edmonton Journal*, 2 February 1978.
- ²⁵ By 28 January, the whole search area had been overflowed at least once by CC-130 aircraft. Gummer et al., *Cosmos 954*, 3, 8; Aikman, "Operation Morning Light," 5-6; DoE, *Operation Morning Light*, 25, 39. Ironically, the gamma ray spectrometers aboard the CC-130 Hercules proved much more effective in detecting Cosmos debris than specially equipped U.S. aircraft designed to measure radioactivity in the atmosphere. See DoE, *Operation Morning Light*, 14, 42; Richelson, *Defusing Armageddon*, 55-56.
- ²⁶ Aikman, "Operation Morning Light," 7.
- ²⁷ DoE, *Operation Morning Light*, 22. Data were also sent on to Los Alamos and the Lawrence Livermore National Laboratory for further study. Richelson, *Defusing Armageddon*, 64.
- ²⁸ Gummer et al., *Cosmos 954*, 8; and DoE, *Operation Morning Light*, 53-54.
- ²⁹ As Canada's statement of claim explained, "The intrusion of the Cosmos 954 satellite into Canada's air space and the deposit on Canadian territory of hazardous radioactive debris from the satellite constitutes a violation of Canada's sovereignty. This violation is established by the mere fact of the trespass of the satellite, the harmful consequences of this intrusion, being the damage caused to Canada by the presence of hazardous radioactive debris and the interference with the sovereign right of Canada to determine the acts that will be performed on its territory. International precedents recognize that a violation of sovereignty gives rise to an obligation to pay compensation." Canada, "Statement of Claim to the USSR for Damage Caused by Soviet Cosmos 954," *International Legal Materials* 18, 4 (July 1979): 907.
- ³⁰ On these concerns, see, for example, Ken Coates, P. Whitney Lackenbauer, Bill Morrison, and Greg Poelzer, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen, 2008); Shelagh Grant, *Polar Imperative: A History of Arctic Sovereignty in North America* (Vancouver: Douglas and McIntyre, 2011); and Adam Lajeunesse, *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty* (Vancouver: UBC Press, 2016).
- ³¹ Heaps, *Operation Morning Light*, 76.
- ³² Annex A: Legal Basis of Canada's Claim: Nature of Damage, to A.E. Gotlieb, Memorandum to Ministers, Cosmos 954 – Claim against the USSR, 18 October 1978, AECB file 15-200-24-12-0 pt.2, ATIP 2016-000082.
- ³³ DoE, *Operation Morning Light*, iv.
- ³⁴ Dean and Lackenbauer, *Operation Morning Light*, 71.
- ³⁵ The first NEST left on 8 March, and two weeks later, the last Americans left for Las Vegas with the remaining U.S. equipment. Mitchell Beer, "Aftermath of Cosmos Crash," *Globe and Mail*, 25 October 1980, 2; DoE, *Operation Morning Light*, 62; Aikman, "Operation Morning Light," 16.
- ³⁶ Dean and Lackenbauer, *Operation Morning Light*, 92.
- ³⁷ Aikman, "Operation Morning Light," 6.
- ³⁸ Lieutenant-General (ret'd) W.K. Carr, "Foreword," in Morrison, *Voyage into the Unknown*, 1.
- ³⁹ Dean and Lackenbauer, *Operation Morning Light*, 92. Accordingly, Prime Minister Trudeau expressed Canada's appreciation for American assistance in a message to

President Carter on 22 March. Aikman, "Operation Morning Light," 16; DoE, *Operation Morning Light*, 62.

⁴⁰ DoE, *Operation Morning Light*, 73.

⁴¹ *Ibid.*, 22.

⁴² See, for example, P. Whitney Lackenbauer and Rob Huebert, "Premier Partners: Canada, the United States and Arctic Security," *Canadian Foreign Policy Journal* 20, 3 (2014): 320-33; P. Whitney Lackenbauer and Peter Kikkert, "The Dog in the Manger – and Letting Sleeping Dogs Lie: The United States, Canada and the Sector Principle, 1924–1955," in *International Law and Politics of the Arctic Ocean: Essays in Honour of Donat Pharand*, ed. Suzanne Lalonde and Ted McDorman (Leiden: Brill, 2015), 216-39; Lackenbauer and Kikkert, "Sovereignty and Security: The Department of External Affairs, the United States, and Arctic Sovereignty, 1945–68," in *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909–2009*, ed. Greg Donaghy and Michael Carroll (Calgary: University of Calgary Press, 2011), 101-20; and Daniel Heidt, "Clenched in the JAWS of America? Canadian Sovereignty and the Joint Arctic Weather Stations, 1946–1972," in *Canada and Arctic Sovereignty and Security: Historical Perspectives*, ed. P. Whitney Lackenbauer (Calgary: Centre for Military and Strategic Studies/University of Calgary Press, 2011), 145-70.

⁴³ John Noble Wilford, "Canadians Pick Up 'Hottest' Satellite Fragment Yet," *New York Times*, 6 February 1978, NJ13.

⁴⁴ Livingstone, "In Search of Radiation in Barren Land."

⁴⁵ "Grow Up, Russia Told," *Edmonton Journal*, 6 February 1978.

⁴⁶ Gummer et al., *Cosmos 954*, 2, 4.

⁴⁷ Canadian Press, "Searchers Find Satellite Debris," *Fort McMurray Today*, 30 January 1978.

⁴⁸ Aikman, "Operation Morning Light," 10.

⁴⁹ Wilford, "Canadians Pick Up 'Hottest' Satellite Fragment Yet."

⁵⁰ Canadian Press, "Satellite Fragment Is Radioactive," *Fort McMurray Today*, 2 February 1978.

⁵¹ Aikman, "Operation Morning Light," 12.

⁵² Gummer et al., *Cosmos 954*, iii, 2, 4; and DoE, *Operation Morning Light*, 56, 58.

⁵³ Gummer, *Summary of Cosmos 954 Search and Recovery Operation*, 4; Dean and Lackenbauer, *Operation Morning Light*, 88.

⁵⁴ Dean and Lackenbauer, *Operation Morning Light*, 77.

⁵⁵ Weiss, "The Satellite That Came into the Cold," 6.

⁵⁶ Hubert Johnson, "The Day Yellowknife Became Famous," *Edmonton Journal*, 26 January 1978, 64.

⁵⁷ "Yellowknifers Didn't Contract Satellite Hysteria," *Yellowknifer*, 9 February 1978.

⁵⁸ See, for example, Heather E. Jamieson, "The Legacy of Arsenic Contamination from Mining and Processing Refractory Gold Ore at Giant Mine, Yellowknife, Northwest Territories, Canada," *Reviews in Mineralogy and Geochemistry* 79, 1 (2014): 533-51; and John Sandlos and Arn Keeling, "Toxic Legacies, Slow Violence, and Environmental Injustice at Giant Mine, Northwest Territories," *Northern Review* 42 (2016): 7-21.

⁵⁹ Cartoons in the Northern media also cast *Operation Morning Light* in a humorous or cynical light, appropriating the situation to poke fun at the influx of scientists and military personnel into the Northwest Territories and the environmental threats posed by radioactive debris.

⁶⁰ Power and Keeling, "Cleaning Up Cosmos," 96.

⁶¹ Witness Dan Billing, Chief of Emergency Services, Government of the Northwest Territories, AECB 15-200-24-12-2 vol.2, ATIP A-2016-00082.

⁶² DoE, *Operation Morning Light*, 25.

⁶³ Robert Blake, "Snowdrift Safer Than Most Places, General Tells Residents," *Yellowknifer*, 2 February 1978.

⁶⁴ Aikman, "Operation Morning Light," 9. See also the description of the visit (replete with offensive racial stereotypes) in Heaps, *Operation Morning Light*, 117-22. While the reported results were reassuring, mixed official messaging left some observers skeptical. See, for example, Beer, "Aftermath of Cosmos Crash."

⁶⁵ "Nuclear Fear Eases Its Grip on the North," *Edmonton Journal*, 1 February 1978.

⁶⁶ A systematic survey of regional newspaper coverage suggested a more reassured response once scientific teams began sharing findings with the public that did not identify an acute threat to humans. See the collection of newspaper stories in *News from the Canadian North*, compiled by Leona Olfert, for 1978 in the Canadian Circumpolar Library collection at the Cameron Library, University of Alberta, Edmonton.

⁶⁷ Heaps, *Operation Morning Light*, 102.

⁶⁸ *Ibid.*, 103.

⁶⁹ Power and Keeling drew a peculiar analogy between concerns about *persistent* organic pollutants (POPs) and radionuclides from satellite debris ("Cleaning Up Cosmos," 102), although the "persistence" of the former makes them materially different in terms of their long-term environmental effects from radioactive contaminants whose potency is measured in half-lives.

⁷⁰ DoE, *Operation Morning Light*, 56, 58; Gummer et al., *Cosmos 954*, iii; Dean and Lackenbauer, *Operation Morning Light*, 88.

⁷¹ Gummer, *Summary of Cosmos 954 Search and Recovery Operation*, 4-5. Although some fragments discovered by search teams had proven highly radioactive, emitting enough radiation to kill a person within a few hours of contact, the widespread dispersal of the particles mitigated the risk, making the odds of a person directly encountering one of these fragments very low.

⁷² "Memorandum: The Louis Lake Fish Story," W.K. Gummer, 27 December 1978, AECB file 15-200-24-0-0, ATIP 2016-00082.

⁷³ "RE: Operation Morning Light," J.H. Jennekens (AECB) to Deputy Minister Grant C. Mitchell (Saskatchewan Environment), 22 January 1979, AECB file 15-200-24-0-0 pt.3, ATIP 2016-000082.

⁷⁴ G.J. Brunskill and R.H. Hesslein (Fisheries and Oceans) to A.T. Prince (AECB), 20 June 1979, AECB file 15-200-27-7-2, ATIP 2016-0082.

⁷⁵ See NAST memos from 7 April 1978 to 7 April 1979, on equipment and facilities handling COSMOS debris, AECB file 15-200-27-7-2, ATIP 2016-0082.

⁷⁶ H.W. Taylor, E.A. Hutchison, K.L. McInnes, and J. Svoboda, "Cosmos 954: Search for Airborne Radioactivity on Lichens in the Crash Area, Northwest Territories, Canada," *Science* 205, 4413 (28 September 1979): 1383-85; and Gummer et al., *Cosmos 954*, 2-5. Small particles measured as low as a few thousandths or millionths of a roentgen per hour and steadily decayed to below natural background levels. September measurements found radiation levels to be one-fifth of what they were in January. For a more in-depth breakdown of the recovered materials and the nature of their radioactivity, see Gummer et al., *Cosmos 954*, 10-32.

⁷⁷ Dean and Lackenbauer, *Operation Morning Light*, 64. Much of the material collected by *Operation Morning Light*, after being flown to CFB Edmonton and then to the

Whiteshell Nuclear Research Establishment at Pinawa, Manitoba, for further testing and storage, was later sent for disposal to the Chalk River Laboratories at Deep River, Ontario. Gummer et al., *Cosmos 954*, iii; Dean and Lackenbauer, *Operation Morning Light*, 67; and Morrison, *Voyage into the Unknown*.

⁷⁸ By the time the project was completed in the summer of 1978, scientists at Whiteshell had examined hundreds of specimens and conducted more than 4,700 analyses. R.B. Stewart, "Russian Satellite Debris: Examination of COSMOS 954 Fragments at the Whiteshell Nuclear Research Establishment," May 1979, 79/528, ATIP A-2015-00298, DHH.

⁷⁹ Gummer et al., *Cosmos 954*, 9.

⁸⁰ See, for example, Dean and Lackenbauer, *Operation Morning Light*; and Gummer, *Summary of Cosmos 954 Search and Recovery Operation*.

⁸¹ "Memorandum: COSMOS 954 FINAL REPORT," F.R. Campbell to W.K. Gummer, 12 October 1979, AECB file 15-200-24-0-0, ATIP 2016-00082.

⁸² Department of External Affairs Aide-Mémoire of February 8, 1978, *International Legal Materials* 18, 4 (July 1979): 913.

⁸³ Diplomats ultimately secured little additional information on Cosmos 954's design than the Soviets initially shared with National Security Adviser Zbigniew Brzezinski. "Confidential" EXTOTT to Tokyo/Gotlieb, 24 January 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁸⁴ Diplomatic notes throughout March 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁸⁵ Morrison, *Voyage into the Unknown*, 3-4. For example, see Edward R. Finch Jr. and Amanda Lee Moore, "The Cosmos 954 Incident and International Space Law," *American Bar Association Journal* 65 (January 1979): 56-59; and R.I.R. Abeyratne, "Environmental Protection and the Use of Nuclear Power Sources in Outer Space," *Environmental Policy and Law* 26, 6 (1996): 255-60.

⁸⁶ Confidential, BNATO to EXTOTT DFR, 1 February 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁸⁷ EXTOTT to Pekin/Mindel, 1 February 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁸⁸ Diplomatic notes during March 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁸⁹ Confidential EXTOTT to Tokyo/Gotlieb, 24 January 1978, AECB file 15-200-24-12-2, ATIP 2016-00082; and Restricted, EXTOTT to BNATO, 8 February 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁹⁰ E.B. Wang, Draft "Cosmos Satellite: Proposed Outline Briefing for Soviet Representatives," 7 March 1978, AECB file 15-200-24-12-2, ATIP 2016-00082.

⁹¹ Joseph A. Burke, "Convention on International Liability for Damage Caused by Space Objects: Definition and Determination of Damages after the Cosmos 954 Incident," *Fordham International Law Journal* 8, 255 (1984): 277.

⁹² Edward G. Lee and David Sproule, "Liability for Damage Caused by Space Debris: The Cosmos 954 Claim," *Canadian Yearbook of International Law* 26 (1988): 278.

⁹³ W.K. Gummer (Manager AECB) to Bruce Stewart (AECL, Whiteshell), 12 January 1979, AECB file 15-200-24-0-0, ATIP 2016-00082.

⁹⁴ Lee and Sproule, "Liability for Damage Caused by Space Debris," 276.

⁹⁵ See Address by L.H. Legault and A. Farand, "Canada's Claim for Damage Caused by the Soviet Cosmos 954 Satellite," American Bar Association Forum Committee on Air and Space Law, First Annual Forum (23-25 February 1984); Burke, "Convention on

International Liability," 255-85; and Brearley, "Reflections upon the Notion of Liability," 291-318. On costs, see Dean and Lackenbauer, *Operation Morning Light*, 220.

⁹⁶ Lee and Sproule, "Liability for Damage Caused by Space Debris," 273-80.

⁹⁷ Burke, "Convention on International Liability," 279-80.

9

Arctic Governance and the Relevance of History

Shelagh Grant*

In discussion of current issues, the relevance of history is too often ignored or disregarded as insignificant. Yet in the case of Arctic governance in North America, there are sufficient similarities to previous challenges to warrant closer examination. A cursory glance reveals a number of circumstances that precipitated changes in ownership or authority, such as an abrupt change in climate, wars and economic adversity, technological advances, and increased demand for Arctic resources. In varying degrees, all are present today. History also reveals that the greatest threat to Arctic sovereignty was loss of control over the adjacent waters and major sea routes.¹ Equally significant are differences in demography, cultural traditions, local economies, and political institutions which become self-evident when comparing the histories of Alaska, Arctic Canada, and Greenland. Admittedly, there are obvious similarities in climate, geography, marine life, flora, and fauna, but human factors are critical to understanding the need for tolerance and compromise in devising policies acceptable to all regions. Although cooperation among the Arctic countries has been enhanced by the success of the Arctic Council, increasing competition for the region's resources could become a divisive factor if accompanied by a threat to authority over adjacent waters.

* Originally delivered at the Arctic Governance in North America Conference, Oxford University, 26-27 September 2013, co-sponsored by the Rothermere American Institute and the North American Studies Program, Oxford University, Oxford, United Kingdom. Later published in *Governing the North American Arctic: Sovereignty, Security, and Institutions*, eds. Dawn Alexandra Berry, Nigel Bowles, and Halbert Jones (London: Palgrave Macmillan, 2016), 29-50.

Arctic governance has evolved over the centuries from simple practices exercised by the first inhabitants to enable survival to more sophisticated assertions of authority adopted by European countries. By the early twentieth century, governance gained even greater significance after international law affirmed that a title based on discovery claims was only temporary or *inchoate*, until permanent settlements or administrative acts provided clear evidence of effective occupation. Hence, the histories of Arctic governance and Arctic sovereignty are closely integrated, with some scholars suggesting they are one and the same.

In terms of historical relevance, there are a number of definitions required to set the parameters of discussion. The first relates to the meaning of Arctic sovereignty. *De jure* sovereignty is a phrase used in international law to refer to having supreme power or title over a region within prescribed boundaries, by political or legal right, and accepted by other nations. *De facto* sovereignty, on the other hand, is a generic or general term used to describe power in fact, or in real terms, but without the political or legal right inherent in *de jure* sovereignty. This term is often used in the negative to refer to a loss of authority or control. Thus, while titles to Greenland, Arctic Canada, and Alaska are secure, the rapid melting of the sea ice has made these coastal countries vulnerable to a “*de facto* loss” of control over the adjacent waters.²

There are also several ways to define the Arctic. For the first inhabitants of the North American Arctic, the lands and frozen waters north of the tree line were without boundaries and known simply as their homeland. Europeans, however, adopted the Arctic Circle as a boundary, an imaginary line just north of 66° North Latitude created by ancient Greek astronomers based on the northern positions of two constellations, *Ursa Major* and *Ursa Minor* (the two bears or *arctos* in Greek). Regrettably, most dictionaries and encyclopedias now use this imaginary line to define the Arctic, which inadvertently excludes most of the Inuit population residing in Arctic Canada and Greenland. Scientists prefer a more appropriate designation based on climate, using the July 10°C isotherm line as the southern border. Canadian historians tend to use the tree line, as it more accurately defines the homelands of the Indigenous people of the North American Arctic – the Greenlanders, Canadian Inuit, and Alaskan Eskimos. On the other hand, when the Euro-Asian and North American countries agreed to establish the Arctic Council to deal with common concerns affecting the environment, they chose the Arctic Circle to determine which states would become permanent members, a political decision which had little bearing on human geography, oceanography, or the environment. As a result, eight countries now call themselves Arctic

nations, of which two, Sweden and Finland, have no coastline bordering on Arctic waters. Iceland is the only Arctic country with no Indigenous population.³

Historical relevance is particularly evident in the evolution of international law, especially laws of the seas, which tended to follow unilateral declarations by world powers with sufficient naval strength to defend their positions. During the seventeenth century, geo-political cross-currents in the Arctic caused laws of the sea to collide with the law of nations, which had originated in Roman law. Inevitably, the two would become closely connected in modern international law.⁴ Although English customary law had taken precedence over natural law by the late nineteenth century, tensions between the two concepts were still evident in negotiations leading up to the United Nations Convention on the Law of the Sea (UNCLOS), which granted the Arctic coastal states special rights and privileges to protect the fragile environment. The fact that international law is based on precedent and tacit agreement partly explains the preference by modern states for negotiated agreements rather than submission of a dispute to the International Court of Justice. Negotiation and compromise may have avoided warfare in settling maritime disputes, but those countries with superior military and economic power continued to exert major influence on the outcome.⁵

Acquiring sovereign title in the New World has a long and complicated history, beginning with decrees set down in the 1493 Papal Bulls of the Catholic Church. When France challenged Spain's monopoly by claiming that discovery must be accompanied by permanent settlement, King Henry IV devised a plan to use profits from the sale of local resources to fund the colonization of New France – a strategy that was not adopted by the British in the North American Arctic. Instead, the task of building fur trading posts was left to private enterprise.⁶ In fact, only a few nations were willing to take direct responsibility for setting up permanent settlements in the Arctic, notably Imperial Russia, Norway, Denmark, and, after 1867, the United States. By comparison, it was not until the 1920s that the Canadian government attempted to establish permanent settlements in the Arctic Islands. Not until fifty years later did Canada and the United States acknowledge that the Eskimos/Inuit might have specific rights related to their long-standing occupation of the region.

The first humans to inhabit the North American Arctic crossed the frozen Bering Strait from Siberia around five thousand years ago. Pulling their small wooden sleds over snow and ice, family groups slowly spread eastward, with some eventually reaching Greenland. Referred to as Paleo-Eskimos, they were followed over time by waves of new migrants, each

with distinctive characteristics. The last to arrive were whale hunters from Alaska, who reached northern Greenland around 1250 A.D. Archaeologists refer to them as the Thule culture, in recognition of the initial discovery of their remains near Thule, Greenland. Because of their sophisticated weapons, large skin boats, and use of dog sleds, the Thule Inuit eventually displaced the Paleo-Eskimos and are considered the ancestors of present-day Canadian Inuit, Greenlanders, and Alaskan Eskimos.⁷ As the longest surviving inhabitants of the North American Arctic, their homelands are central to their cultural identities, and they are determined to protect them for future generations.

Yet, long before the Thule Inuit reached Greenland, Europeans had already settled in southern portions of the island – more than five hundred years before Columbus allegedly discovered America. They were Norwegian Vikings, led by Erik the Red, who had been exiled from Iceland. In 986 A.D., he arrived at southern Greenland with fourteen ships carrying cattle, sheep, supplies, and roughly three hundred men, women, and children. Joined by more families, the Norse established two large farm settlements which were supported by trade with Norway. At their peak, the combined population of the two colonies was estimated to be more than three thousand – a sizeable number by New World standards. Moreover, the colony survived for over four hundred years. These were Christian communities, with a resident bishop who reported to Rome. The farmers had adopted a relatively sophisticated form of government, and by 1300, they were paying taxes to the King of Norway.⁸

The most southerly community, which was called the Eastern Settlement, was the oldest and by far the largest. The Western Settlement lay to the north and was the first to be abandoned. By 1450, however, the farmers and their families had disappeared without a trace. Scholars suggest that it was a combination of the Little Ice Age, a decline in trade, loss of their own ships, and attacks by Portuguese fishermen or perhaps by Thule Inuit who were slowly making their way southward along the west coast of Greenland. Some suggest that the Inuit survived because they were skilled at adapting to a changing environment, whereas the Norsemen attempted to change their environment to fit the traditions of their homeland. All are compelling arguments, but Inuit oral history states only one cause: the end of visits by Norwegian merchant ships, which left the farmers vulnerable to repeated, vicious attacks by foreign fishing vessels.⁹

Based on maps published during the next three centuries (1500-1800), relatively little was known about the Arctic, even though European merchants, with the support of their respective monarchs, had financed

numerous expeditions in search of a northern sea route to China. Fishermen also sailed north in search of cod and whales, but competition was fierce – initially between the Spanish, English, Portuguese, and Basques, who were joined later by the Dutch and Danes. This was also an era of larger ships, new technologies, and more sophisticated navigational aids, but the fishermen and whalers tended to keep their maps confidential to avoid competition. Significant to the relevance of history is the influence exerted by competing merchants to gain financial or political support from their respective monarchs and governments, comparable to the immense pressure currently wielded by large industries on their respective governments.

Once whalers began trading with Indigenous people for furs and ivory, royal charters were granted to claim lands and adjacent waters, such as the charter granted in 1670 by England to what became the Hudson's Bay Company, Danish charters for Greenland trading companies beginning in 1721, and Imperial Russia's 1799 charter for its Russian-American Trading Company in Alaska. Yet, the purpose of the British charter differed somewhat from that of the others. As the importance of Arctic resources in British trade was negligible in the eighteenth century, the chief British aim was to gain an access route to the lucrative fur resources in the interior, bypassing the French-controlled St. Lawrence waterway.

Maintaining control over the Arctic sea routes proved difficult. Forts were built at major ports, but they still required naval support. Even the large stone fortification built to protect the Hudson's Bay Company post near Churchill fell without a single shot to the French in 1782, only to return to British hands with the signing of the 1783 Treaty of Paris. Almost continuous European wars eventually took their toll, with Spanish, Basque, and Portuguese fishermen the first to depart from the North Atlantic, the French soon after from Hudson Bay, and finally the Dutch, whose merchant fleet and navy were decimated in the Napoleonic Wars. American whalers tended to prefer the North Pacific over the North Atlantic, which was frequented by British whalers throughout the nineteenth century. Furthermore, the U.S. Navy was still in its infancy and after the War of 1812 tried to avoid confrontation with the all-powerful Royal Navy.¹⁰

In terms of Arctic governance, the history of Greenland deserves closer scrutiny. After several unsuccessful attempts to find the lost Norsemen, the kings of Denmark/Norway more or less left Greenland to the English and Dutch whalers. Then, in 1719, a young Norwegian missionary presented King Frederick IV with a plan to reclaim Greenland by creating a combination of mission and trading settlements, with the support of

Bergen merchants, the Navy, and the Lutheran Church. Granted a royal charter in 1721, missionary Hans Egede, with his family and twenty-eight settlers, set out for Greenland. More would follow. In spite of hardships and frequent attacks by Dutch and English whalers, the settlements grew in size and number. In 1782, the Danish government took direct control of the Royal Greenland Trading Company, retaining a trade monopoly that isolated the native Greenlanders from foreign influences but over time provided them with schooling, medical services, and employment opportunities.¹¹ Access to a formal education provided these Inuit with skills needed to adapt to the modern world, well ahead of Canadian Inuit, who had no regular schooling until the mid-twentieth century. Even Alaskan Eskimos received schooling in the late 1890s as a result of a program established by a Presbyterian missionary and later approved by the U.S. Congress.¹²

Meanwhile, Russia had gradually expanded its control eastward across Siberia, following Peter the Great's launch of the Russian Imperial Navy and the subsequent "Great Northern Expeditions" in the 1700s. Captain Vitus Bering is credited with the discovery of Alaska in 1741, and Russian fur traders soon followed. Catherine the Great, a strong supporter of the Alaskan fur trade, sent the Imperial Navy to protect the trading posts and their ships from attacks by the English and Spanish. But since she resisted trade monopolies, it was not until after her death that an imperial charter was granted in 1799 to the Russian-American Trading Company. The terms of the charter included provision of medical services and schooling for the **Natives** under the auspices of the Eastern Orthodox Church. With headquarters on Sitka Island, the company added further trading settlements stretching as far south as to what is now California, but costs were high and competition from British and American traders steadily increased. In an attempt to avoid conflict, Russia negotiated treaties that defined Alaska's boundaries – with the United States in 1824 and Britain in 1825.¹³ Despite their intent, the two treaties failed to protect Russia's sovereign rights in North America.

The nineteenth century witnessed the last major changes to the map of the Arctic as a result of British exploration, American expansionism, and the creation of the new Dominion of Canada. At the end of the Napoleonic Wars, the British Admiralty launched a number of Arctic expeditions with two primary objectives: to discover the Northwest Passage and to be the first to reach the North Pole. While expedition leaders recorded numerous claims to newly discovered lands, these were never ratified by British Parliament – a circumstance that would have later consequences for Canada's title to the Arctic Islands. In mid-century, the Admiralty sent a

number of expeditions to search for Sir John Franklin and his ships, after their failure to return from yet another attempt to locate a westward passage through the Arctic Islands. Even then, official maps suggested that knowledge of the region was still very incomplete. Although ships from other nations joined in the search, there was no attempt to register new discovery claims. Nonetheless, the Admiralty ships were “no longer the sole possessors of charts for the area” and now faced potential competition throughout the Arctic Islands.¹⁴

The British Admiralty called off the search for Franklin after another unsuccessful attempt in 1850, partly in the belief that its ships would be needed to protect Britain’s interests in the Mediterranean, where Russia was threatening to expand its authority over the declining Ottoman Empire. Yet, even before the onset of the Crimean War in 1854, it was apparent that the British people and their government had lost their appetite for Arctic exploration as news trickled home about the loss of Franklin’s ships, starvation of the crew, and possible cannibalism. The Admiralty sent one more expedition north in 1876. Although promoted as another attempt to reach the North Pole, it also served to secure claims to the northern coast of Ellesmere Island prior to the transfer of the Arctic Islands to Canada. By 1884, however, the United States government also lost interest in the Arctic after the tragic starvation experienced by the Greely expedition on northern Ellesmere and announced it would no longer finance polar exploration.¹⁵

Henceforth, it would be leaders of privately funded expeditions who sought to achieve the honours and prestige once sought by the British Admiralty – notably Norwegians Fridtjof Nansen and Roald Amundsen, the latter being the first to sail through the Northwest Passage, as well as Americans Robert Peary and Frederick Cook, who both claimed to be the first to reach the North Pole. As described by Stephen Bown in *The Last Viking*, this was an era when polar exploration became an industry requiring skilful publicity to ensure financial compensation from articles, interviews, and public lectures. Although claiming honour and glory for their respective countries, this was only secondary to the ambitions of the new age explorers. This period also witnessed the manipulative power of the press on public perceptions with melodramatic stories of the Arctic and its heroic explorers. Accuracy did not seem important as long as the headlines sold newspapers.¹⁶

For the British Admiralty, the Crimean War might be considered a distraction that demanded a diversion of financial resources once allocated to Arctic exploration – perhaps somewhat similar to the effect of the current unrest in the Middle East on the U.S. Coast Guard’s repeated

requests for new icebreakers and port facilities to monitor increased foreign shipping in Alaskan waters. Although major wars might create new alliances, they could also reinforce old rivalries. Such was the case with the Crimean War, which served to intensify the animosity between Russia and Great Britain. In spite of a neutrality agreement for the Russian-American Trading Company, British ships blockaded their vessels in Alaskan ports and seized them on the high seas. By 1860, the company's losses were extensive, and Russia was in severe financial straits. Reluctantly, Tsar Alexander II agreed to sell Alaska to the United States to prevent it from falling into British hands, suggesting that the territory had become a by-product of the spoils of war, with the United States a winner by default.

When approached by the Russian ambassador in March 1867, U.S. Secretary of State William Seward quickly signed a tentative purchase agreement. In spite of harsh criticism and intense debate, he gained congressional approval, and the cession of Alaska was officially declared on 20 June – just eleven days before the new Dominion of Canada came into being.

Aside from potential economic benefits, Seward believed that the purchase would provide incentive for the American annexation movement in British Columbia. He also proposed that the United States purchase Greenland in hopes that eventually all Canadians would seek annexation, thus fulfilling the vision that it was the United States' "manifest destiny" to someday embrace the entire North American continent. This time, however, his proposal to the U.S. Senate fell on deaf ears and was never debated.¹⁷ Furthermore, after the Greely disaster and with the U.S. Navy still under major reconstruction, the U.S. government showed little interest in expanding its influence northward, especially when faced with the challenge of re-unifying its country after the Civil War.¹⁸

Although economic benefits from the Alaskan purchase would prove far greater than Seward predicted, instead of encouraging British Columbia to join the United States, the purchase of Alaska served as a catalyst to Britain's actions to prevent its remaining North American possessions from falling into the hands of the United States – at least under its watch. Thus, in 1870, Canada's Prime Minister John A. Macdonald was pressured into annexing the Hudson's Bay Company's lands, with Britain loaning the money to fund the deal. Then, just four years later, in 1874, the British Colonial Office offered to transfer the Arctic Islands to the new Dominion. Advised by the Admiralty that their maps were incomplete, British officials refused Canada's request that the

transfer be legislated by an act of parliament with the boundaries clearly defined. Instead, the transfer of the Arctic Islands was made in 1880 by a simple order-in-council, with only a vague definition of boundaries and without the approval of the British Parliament.¹⁹

As a consequence, within thirteen years of its creation, Canada had become one of the world's largest countries in size but with a miniscule population and no navy or even a government ship capable of sailing in the Arctic to monitor activities in its newly acquired lands. Moreover, a quarter century would pass before Canadian officials were aware of any potential weakness in the Dominion's title to the Arctic Islands. In fact, despite earlier warnings that American whalers were occupying lands belonging to Canada, it was not until the Alaska boundary dispute at the turn of the century that politicians expressed serious concern about a possible threat to its Arctic sovereignty. Were their fears justified? Or were Canadians just overly sensitive to threats of American expansionism, fuelled by overzealous agitation by the newspapers?

In the case of Herschel Island, lying offshore from Canada's Northwest Territories, concerns may have been justified. In 1889, officers of USS *Thetis* had charted the waters and surveyed the island in preparation for construction of year-round facilities for American whalers. Yet, the U.S. government made no attempt to register a claim to the island. Unknown to Canada at the time, Alaska offered far greater opportunities than Herschel Island. Even before the discovery of gold, geologists had found oil in Alaska. Claims were filed in 1890, and twenty years later, oil was produced and refined for local use at Katalla on the Gulf of Alaska. Although still too costly to transport south, it was only a matter of time until new technologies and increased demand would make development of Alaskan oil profitable.²⁰

Canadian Prime Minister Sir Wilfrid Laurier, however, was sufficiently concerned in 1903 to establish two new police detachments in the Arctic: at Fort McPherson in the west and at Fullerton Harbour on Hudson Bay. The following year, a confidential report by Dr. W.F. King, who at the time was considered the country's foremost expert on sovereign rights and international law, verified the vulnerability of the Arctic Islands to potential challenge. Citing the nature of the British transfer and failure to ratify it by parliament, King argued that the discovery claims had created only a temporary or *inchoate* title. To secure permanent title would require administrative acts and eventually settlements to provide evidence of "effective occupation."²¹

Without assistance or sanction by British officials, the Liberal government took immediate action, initially with the purchase of a

government ship – CGS *Arctic* – which was sent on three lengthy expeditions to the High Arctic led by Captain J.E. Bernier (1906-11) with a mandate to collect customs duties from foreign whalers, chart uninhabited islands, and claim them for Canada. Laurier’s intent was to ensure that there were no existing foreign settlements on the remote islands before building police detachments to support a network of permanent communities comprised of trading posts and church missions.²² No mention appeared in the press releases about any threat to Canada’s title. Instead, the Bernier expeditions were promoted as the nation’s rightful assertion of authority over the Arctic Islands.

Meanwhile, in response to the Alaskan Boundary Tribunal’s rejection of Canadian claims, the media continued to fuel fears of American expansionism. As expected, the Canadian public reacted with righteous indignation at any suggestion that the United States might challenge their hard-earned sovereign rights in the Arctic. Having created a sensitivity that sold papers, the larger presses continued to incite public anger at the slightest hint that the Americans might be treading on Canada’s sovereign rights in the Arctic, a practice that continued throughout the Second World War and Cold War. As a result, federal election campaigns often included commitments by party leaders to protect Canada’s Arctic sovereignty, often accompanied by unrealistic promises of how this might be achieved – as appeared to be the case under the Conservative government from 2006 through to 2015.²³

At the turn of the twentieth century, the media frenzy accompanying the Alaska boundary dispute was also fuelled by lingering anti-American sentiments among descendants of Empire Loyalists and an upsurge in Canadian nationalism reflecting an intense pride in the new nation, accompanied by belief in a unique identity that differentiated Canadians from Americans. Often described as “the myth of the north,” Canadians believed that the vast northern wilderness had imparted a unique quality to the nation’s character which left a lasting imprint on the national psyche. Reflecting a reverence and respect for the natural environment as portrayed in the paintings by the Group of Seven and a plethora of literature enhanced by photographic images, this vision also included the Arctic – the farthest north or *Ultima Thule* – too often without recognition of its inhabitants. Canada’s belief in its northern identity partly explains the determination to protect its Arctic sovereignty, but it was rarely understood by Americans whose nation was born of a revolution and its economic growth driven by expansionism, industrialization, and trade.²⁴

Meanwhile, the Bernier expeditions came to an end in 1911 with the election of a Conservative government led by Sir Robert Borden.

Considering the Liberal strategy too costly, Borden instead approved a single, multi-year initiative – the Canadian Arctic Expedition 1913-18 – led by Vilhjalmur Stefansson, who succeeded in discovering four previously uncharted islands. With the return of the Liberal Party to power in 1921, the government expeditions to the Eastern Arctic resumed on an annual basis, initially prompted by fears that Denmark might claim previously uncharted lands discovered by the Fifth Thule Expedition. The Eastern Arctic Patrol, as it was then called, also assisted the Royal Canadian Mounted Police (RCMP) in building new detachments and performing numerous administrative tasks as evidence of “effective occupation.” Essentially, this was a resumption of Laurier’s earlier strategy to secure Canada’s title to the Arctic Islands, but with additional police posts built in the Western Arctic to support the growing number of fur trading posts and church missions.²⁵

By now, however, reports of increasing episodes of Inuit violence had raised new concerns about enforcing Canadian laws and justice. As a result, in 1923, two murder trials were held in the Arctic: one at Pond Inlet on northern Baffin Island and the other at Herschel Island in the Western Arctic. Aside from acting as a deterrent to further violence, the trials were publicized in newspapers and magazines to show that Canada was fully capable of enforcing its laws and administering justice in the remotest regions of the Arctic. For similar reasons, silent films taken each summer of the Eastern Arctic Patrol were shown in American movie theatres and to audiences in Greenland.²⁶

Although the Great War had no direct impact on the North American Arctic, the advances in aviation technology made the region accessible to more people and over longer periods of time. It also prompted a 1925 American expedition, in which United States Navy (USN) Lt. Commander Richard Byrd used two amphibian biplanes to explore portions of Ellesmere Island and the islands to the west.²⁷ Fearing that the United States intended to claim previously uncharted lands, the Canadian government took immediate action under advisement by Dr. O.D. Skelton, the newly appointed Assistant Secretary of State for External Affairs. Aside from the interception of the Byrd expedition by the Eastern Arctic Patrol, a new police detachment would be built on Ellesmere Island’s Bache Peninsula, further legislation passed requiring licences for Arctic exploration, and the Arctic Islands Game Preserve established to provide an additional vehicle for law enforcement. Also under Skelton’s direction, an agreement was negotiated to purchase the maps and notes of Norwegian explorer Otto Sverdrup, who had charted and laid claim to

several Arctic Islands. In return, Norway agreed to support Canada's claim to the entire Archipelago.²⁸

Norwegians may have lost their ties to Greenland and the Faroe Islands when their country was separated from Denmark in 1814, but not their passion for Arctic exploration, as evident in the exploits of countrymen Fridtjof Nansen and Roald Amundsen. After successfully gaining sovereign rights to the Svalbard Islands in 1920, Norway attempted to lay claim to East Greenland. Denmark protested, and in 1933, the Permanent Court of International Justice (PCIJ) handed down a landmark decision granting Denmark rights to all of Greenland. This decision also gave greater force to Canada's title over the Arctic Islands.²⁹

Slowly but surely, the Canadian government accumulated clear evidence of "effective occupation" to secure permanent title to the Arctic Islands, but it did so at considerable financial cost and without assistance from Great Britain or a major confrontation with the United States. Although the United States originally maintained that uninhabited portions of the Archipelago were a *terra nullius*, by 1939, American officials appeared to accept that Canada had established clear title to the islands.³⁰ On the other hand, the United States continued to reject Canada's claim that the Northwest Passage was internal waters, a dispute that has yet to be resolved.

When signs of German aggression again surfaced in the mid-1930s, American officials prepared detailed plans for continental defence that included protection of the entire North American Arctic. Thus, after Denmark fell to the Germans in April 1940, the United States – although restricted by the terms of the Neutrality Act – immediately assumed the right to protect Greenland, citing the Monroe Doctrine as justification. The Greenland Patrol was established utilizing the U.S. Coast Guard's icebreakers, with its primary objective to protect the cryolite mine at Ivigtut on the southwest coast – cryolite being a relatively rare mineral required in the manufacture of aluminum for warplanes. Abiding by the terms of the Neutrality Act, members of the coast guard were released from service and supplied with arms to act as volunteer guards to defend the mine.³¹

Upon entry into the war after the bombing of Pearl Harbor in December 1941, the United States immediately began to implement its defence plans, which included construction of an extensive network of airfields, weather stations, and radar installations in Greenland, Labrador, and northern Canada. The projects were extensive – at one time, the number of U.S. military personnel and civilians in the Canadian Northwest was reportedly greater than the Canadian population,

including native Indians and Inuit. Some Americans called themselves “the Army of Occupation.”³² Yet, all the projects in Canada were considered joint operations and approved by mutual agreement through the Permanent Joint Board on Defence, a body which is still responsible for approval of Canadian-American security measures. Although many of these wartime agreements involved a “de facto” loss of sovereignty, Canada’s sovereign rights were considered protected by written statements attached to approvals for each project.³³

The wartime activities also marked the assumption of American military hegemony over the North American Arctic, a policy still central to current United States policy as described in the “National Strategy for the Arctic Region,” released by the White House in May 2013. Of somewhat lesser importance, U.S. policy now includes responsible stewardship of the Arctic region alongside strengthening international cooperation through the Arctic Council and other bilateral and multilateral organizations. While there may appear to be a slight decrease in interdependence, the United States and Canada remain inseparable allies in defence of North America.

As the war was nearing an end, Canada attempted to encourage the early departure of U.S. forces and limit long-term benefits by paying for all permanent structures built by Americans on Canadian soil. An abrupt change of plans came about as a result of Soviet actions in East Berlin and the spy network revealed by defector Igor Gouzenko. An ally during the war, the Soviet Union was now considered an enemy. After prolonged negotiations, Canada and the United States announced a Mutual Defense Cooperation Agreement in February 1947, which allowed further construction of weather stations and airfields in the Canadian Arctic. With the detonation of Soviet atomic test bombs, initially in 1949, and a hydrogen bomb in 1953, the onset of the Cold War was inevitable. U.S. military activities in northern Canada escalated, including extensive early warning radar systems and airplane and submarine surveillance.³⁴ In northern Greenland, a large offensive air base with a nuclear ballistic missile site and submarine berth was constructed in 1953 at Thule, in addition to three Distant Early Warning stations to the south – all covered by agreement with Denmark as part of its contribution to NATO. In 1958, an exchange of notes between Canada and the United States created the North American Air Defence Command (NORAD) to unify the air defence of the two countries. Eventually, Ballistic Missile Early Warning System (BMEWS) installations would provide protection stretching from Alaska across northern Canada and Greenland to England.³⁵ In Alaska, there was also an increased military presence including two hundred interceptor

planes and sixteen thousand air force, army, navy, and coast guard personnel.³⁶

Not all Canadian efforts to secure its sovereignty in the Arctic Islands were above reproach. The Eskimo Affairs Committee, created in 1952 to deal with welfare problems, suggested that Inuit families might be moved from areas of dwindling fur resources to the uninhabited High Arctic. Inevitably, the proposal became part of a larger discussion on how to protect Canada's Arctic sovereignty under potential threat by new increases in U.S. military activities. One estimate indicated that there might be 1,200 American military personnel and civilians in the District of Franklin compared to 140 Canadians (the Inuit population was not included). Initially, the plan was to send Inuit families from northern Quebec to work at the new airbase at Resolute. When neither the RCAF nor the Canadian Weather Bureau was prepared to foot the bill for their accommodation, plans abruptly changed. The relocation project was now described as an "experiment" to see if the Inuit from southern locations could survive in the High Arctic. As a consequence, they were placed in camps distant from the police detachments lest they became too dependent on their help while adapting to their new environment. The project may have provided a small Canadian presence in otherwise uninhabited lands, but the hunting was poor and families encountered severe hardships. Although promised that they could return in two or three years, requests to do so were refused.³⁷

Angry protests finally led to a Royal Commission of Inquiry in 1991, which resulted in payment of compensation to the relocated families, arrangements for their return to their original homelands if desired, and finally, in 2010, an official apology from the Canadian government. Unlike Russia and Denmark, which had relocated Indigenous families to bolster their Arctic sovereignty claims in the late nineteenth and early twentieth centuries, the Canadian government failed to provide housing and basic services at the time of transfer.³⁸ In this instance, historical relevance lies in the fact that the Canadian government found it difficult to ignore Inuit demands when negotiating the terms of the new Nunavut Territory and other agreements on various forms of Inuit self-government. Inuit traditionally have long memories and are no longer content with simply being "consulted" on issues affecting their future.

The post-war and Cold War years witnessed continued reliance on negotiated agreements and treaties to resolve potential disputes over sovereign rights. Although details of Canadian-American cooperation on defence were confidential, discussions on matters of trade and energy were more open, especially after the discovery of oil in Prudhoe Bay,

Alaska. As might be expected, the Canadian media again incited a public outcry in 1969, when Humble Oil sent the super-tanker SS *Manhattan* on a trial run through the Northwest Passage without first requesting approval from the Canadian government. Prime Minister Trudeau responded by introducing the Arctic Waters Pollution Prevention Act (AWPPA), which created a one-hundred-nautical-mile offshore zone over which Canada had the authority to enforce anti-pollution regulations – a unilateral action taken ahead of international law. At the time, the act represented a declaration of special rights to achieve recognition of sovereign authority.³⁹ Despite the initial intent, the AWPPA and subsequent revisions are now considered critical to protect the fragile environment.

In 1985, the Canadian media again aroused public concern that Canada's authority was threatened when the United States Coast Guard (USCG) icebreaker *Polar Sea* sailed through the Northwest Passage without government approval. This time, the Canadian government responded by drawing baselines around the Archipelago and declaring all waters within to be internal waters and subject to Canadian laws. To resolve a potential rift in Canadian-American relations, a carefully crafted Arctic Cooperation Agreement was signed by both countries in 1988, which declared that navigation by U.S. government ships in waters claimed to be internal would be "undertaken with the consent of the Canadian government." In essence, the agreement resolved immediate tensions by acknowledging the right of both Canada and the United States "to agree to disagree" over the status of the Northwest Passage.⁴⁰ But it also served as a reminder that Canada's jurisdiction over its internal waters remains vulnerable to challenge.

During this period, diplomatic initiatives that indirectly involved the Arctic were becoming more multi-national, as evident with the increasing number of international aviation and shipping associations – including the International Maritime Organization (IMO) responsible for establishing criteria for safe shipping throughout the world. In 1956, the United Nations held its first conference on the "laws of the sea" with the intent to establish an international agreement to replace the existing "freedom of the seas" concept that dated back to the seventeenth century. After a series of meetings and intense negotiations, the United Nations Convention on the Law of the Sea (UNCLOS) was finally concluded in 1982 and came into force in 1994 after ratification by sixty nations. Of particular importance for Canada was Article 234, which allows the enforcement of its AWPPA within the Exclusive Economic Zone that extends two hundred nautical miles beyond the baselines drawn around the Archipelago. Russia ratified the agreement in 1997, and Canada in

2003. The United States is the only Arctic country refusing to ratify the treaty. With increasing pressure from the U.S. Navy and Coast Guard, some officials suggest that it is only a matter of time.⁴¹

Meanwhile, the creation of the Inuit Circumpolar Conference (ICC) in 1972 marked a major step in advancing Inuit interests in North America. Initially prompted by concern over increased drilling and shipping arising from the discovery of oil in Prudhoe Bay, the ICC would see Greenlanders, Canadian Inuit, and Alaskan Eskimos join forces to ensure the protection of their environment. Later, the few Inuit still residing in Russia's Chukchi Peninsula were added to the membership. Supported by a dedicated and energized executive, the ICC produced a "Comprehensive Arctic Policy" which clearly laid out its concerns and objectives.⁴² The organization was not only effective in asserting its influence on local issues but succeeded in gaining international recognition for Aboriginal Rights. The adoption of the Universal Declaration on the Rights of Indigenous Peoples by the UN General Assembly in 2007 is one example; Inuit representation as permanent participants on the Arctic Council is another. Of particular significance to current issues was the ICC's "Declaration on Arctic Sovereignty" in 2009, which declared that "industrial development of the natural resources of the Arctic can proceed only insofar as it enhances the economic and social well-being of Inuit and safeguards our environmental security."⁴³ Lofty ambitions, but as noted earlier, the Inuit of North America are not content to be merely "consulted" on decisions affecting their future as suggested in some government policy statements, including those of the European Union and the United States.⁴⁴ Other nations might also take note that in a 2008 referendum, Greenland voted overwhelmingly in favour of future independence from Denmark.⁴⁵ Again, lofty ambitions but driven by determination.

Denmark and the United States continued to cooperate on security issues during the Cold War, although the Danish government gradually resumed responsibility for the naval and coast guard protection of Greenland. The Thule Air Base was downsized after the fall of the Berlin Wall, but it is still home to the 821st Air Base Group and the 12th Space Warning Squadron responsible for the Ballistic Missile Early Warning Site. The former Distant Early Warning Systems in Canada and Alaska were upgraded and automated, with the United States still directly involved in their operation. The stations in Greenland, however, have since been abandoned. Canada, meanwhile, acquired full control of the Joint Arctic Weather Stations (JAWS) and their airfields. The Cold War's end also brought about closer ties between the Russian Federation and Norway,

especially with regards to resource development and use of the Northern Sea Route.⁴⁶

Increasing cooperation among the circumpolar countries was evident by the early 1990s but took a giant step forward in 1996 with the creation of the Arctic Council. Members included the eight states with lands touching on, or north of, the Arctic Circle, along with representatives of several Indigenous groups assigned as permanent participants. Perhaps because the frozen Arctic Ocean at the time offered only scientific interest for non-Arctic countries, no one challenged the right of the eight Arctic States to assume responsibility for the region and its adjacent waters.⁴⁷ With the rapidly melting sea ice cover, however, the situation has changed, raising concerns about whether the unity expressed by the circumpolar countries can withstand pressure by non-Arctic countries for more direct say in governance of the Arctic Ocean and for greater access to the mineral-rich seabed. The rights of Arctic countries to enforce laws in their adjacent waters are already being challenged, especially with regard to the Northwest Passage and Northern Sea Route. For example, in June 2013, the International Chamber of Shipping argued that “the UNCLOS regime of “transit passage” of straits used for international passage supersedes the rights of coast states” and demanded an end to discriminatory action by the Arctic States against ships registered with non-Arctic nations.⁴⁸ Moreover, although the need was urgent, the IMO has been slow to gain approval for a mandatory polar code.

Numerous lessons from the past can be applied to planning future governance in the North American Arctic and throughout the circumpolar region. First and foremost is the vulnerability of existing authority over the sea lanes and adjacent waters to challenge by non-Arctic countries seeking to gain material benefit from commercial shipping. Already, claims that the Northern Sea Route and Northwest Passage are internal waters and thus subject to Russian and Canadian laws have been subjected to criticism, although not physically challenged. Regardless of the outcome, it is imperative that the IMO set out a mandatory polar code with sufficient terms and penalties to prevent future collisions, oil spills, excessive emissions, and dumping of waste in portions of the Arctic Ocean beyond the jurisdiction of coastal states.

Secondly, the rights and concerns of the Eskimos/Inuit of Alaska, Arctic Canada, and Greenland should be recognized as a priority in any discussions on future governance. Having proved adept in adapting to changing physical and political environments, their knowledge and advice will be invaluable as the region undergoes further changes affecting local economies and social infrastructure. Objectives may differ

from one community to the next, but growth must be sustainable over time and not subject to the “boom and bust” syndrome associated with previous mining development.

As in the past, the media continues to fuel unrealistic expectations of the Arctic as a treasure trove, a source of untapped riches, or “an emerging epicenter of industry and trade akin to the Mediterranean Sea,” with a hype comparable historically to the excitement generated by the Klondike Gold Rush, or more recently the oil and gas discoveries at Prudhoe Bay, Alaska.⁴⁹ Kathrin Keil, writing for the Arctic Institute in Washington, addresses the issue, concluding that “depicting the Arctic as an economic treasure trove of global importance is exaggerated ... but also it importantly sidetracks the really pressing and difficult problems concerning the future of the region.”⁵⁰ While sober second thoughts appear to be emerging, will they garner sufficient publicity to bring about a more temperate, cautious approach to future development? Or will Canada still be characterized as “hewers of wood and drawers of water,” and thus more likely to accept environmental degradation and pollution associated with resource development? Will the United States be distracted by unrest in the Middle East and unable to comply with requests from the U.S. Coast Guard for more icebreakers and port facilities?

Canada, the Russian Federation, Norway, Denmark, and to a lesser extent the United States have been firm in their commitment to protect their sovereign rights in the Arctic against outside intervention. Unlike bygone years, when naval superiority was required to protect sovereign rights in the Arctic, current plans to strengthen military protection are driven not by fear of enemy invasion but by determination to protect their Arctic waters from non-compliant foreign vessels. Any suggestion that there is need for NATO involvement seems misplaced and could threaten the current cooperation among the Arctic countries who believe that potential conflicts can be resolved on the basis of UNCLOS and decisions of the Arctic Council.⁵¹ But will current military surveillance by the Arctic countries be sufficient to protect the fragile environment? Will Canada’s belief in its unique northern identity strengthen its commitment to protect its Arctic lands and waters, or has increasing urbanization and multiculturalism weakened the resolve? Will the Arctic lose its allure as a unique, sparsely populated wilderness and become prey for the mega-corporations who view the region as an under-utilized wasteland, rich in resources, and a potential source for global prosperity?

The history of the North American Arctic does not offer a crystal ball to predict the future, but it does provide important insights into previous successes and failures in governing the region, as well as previous

consequences of wars and economic adversity, difficulties in adapting southern technologies to a polar environment, the inclination of overzealous reporters to prey on popular sensitivities, and the tendency to discount Indigenous Peoples' determination to protect their environment and culture for future generations.⁵² Based on historical precedence, the greatest challenge facing the Arctic States will be their ability to retain control over the sea routes and adjacent waters.

Meanwhile, the various issues have become blurred, interconnected, and increasingly complex. Predictions are now an exercise in futility and scholarly analysis more cautious. But more than ever, the need for commitment and cooperation is essential, both within and between the eight Arctic countries and with full support from the broader global community. Success may seem impossible – but in the words of Norwegian explorer Fridtjof Nansen, “The difficult is what takes a little time; the impossible is what takes a while longer.”⁵³

Notes

¹ Shelagh D. Grant (2010) *Polar Imperative: The History of Arctic Sovereignty in North America* (Vancouver: Douglas & McIntyre), 404. Although most historical data in this paper is found in this publication, other references are added to provide more details.

² Grant, *Polar Imperative*, 10-14.

³ Grant, *Polar Imperative*, 5-9.

⁴ B.J. Theutenberg (1984) ‘Mare Clausum et Mare Liberum’, *Arctic*, 37:4, 481-83.

⁵ Grant, *Polar Imperative*, 11-14; for more detailed information, see M. Byers (2013) *International Law and the Arctic* (Cambridge: Cambridge University Press); and D.R. Rothwell (1996) *The Polar Regions and the Development of International Law* (Cambridge: Cambridge University Press).

⁶ Grant, *Polar Imperative*, 15-17; T. Berger (1991) *A Long and Terrible Shadow: White Values, Native Rights in the Americas, 1492-1992* (Vancouver: Douglas & McIntyre), 1-15.

⁷ Grant, *Polar Imperative*, 30-40; see also R. McGhee (2005) *The Last Imaginary Place: A Human History of the Arctic World* (Toronto: Key Porter); and P. Schledermann (1996) *Crossroads to Greenland: 3000 Years of Prehistory in the Eastern High Arctic* (Calgary: Arctic Institute of North America).

⁸ Grant, *Polar Imperative*, 40-51. For more details about the Norse settlements, see F. Gad (1970) *The History of Greenland*, vol. 1, *Earliest Times to 1700* (London: C. Hurst and Company); K. Seaver (1996) *The Frozen Echo: Greenland and the Exploration of North America ca. A.D. 1000-1500* (Stanford: Stanford University Press); G. Sigurdsson (2000) *Vikings in the New World* (Reykjavik: Culture House); and a somewhat controversial interpretation by J. Diamond (2005) *Collapse: How Societies Choose to Fail or Succeed* (Toronto: Penguin Books), 211-77.

⁹ Story by a Greenland Inuk appears in H. Egede Saabye (2009) *Journal in Greenland 1770-1778* (Hanover, NH: IPI Press), 49; also quoted in Grant, *Polar Imperative*, 51-52.

¹⁰ Grant, *Polar Imperative*, 59-81 and 86-91.

-
- ¹¹ Grant, *Polar Imperative*, 81-86, 148-52, and 181; see also L. Bobé (1953) *Hans Egede: Colonizer and Missionary of Greenland* (Copenhagen: Rosenkilde and Bagger); Gadd, *History of Greenland*, vol. 1-2.
- ¹² S. Haycox (2006) *Alaska: An American Colony* (Seattle: University of Washington Press), 177-87.
- ¹³ Grant, *Polar Imperative*, 86-91 and 118-23; P.A. Tikhmenev (1978) *A History of the Russian-American Company* (Seattle: University of Washington Press).
- ¹⁴ Grant, *Polar Imperative*, 97-114. Aside from the published journals by British Admiralty officers, see Captain F.E. McClintock (reprint 2012) *The Voyage of the 'Fox' in the Arctic Seas: In Search of Franklin and His Companions*, 3rd edn (Vancouver: Touchwood Books); F. Fleming (1998) *Barrow's Boys: The Original Extreme Adventurers: A Stirring Story of Daring, Fortitude, and Outright Lunacy* (New York: Atlantic Monthly Press); and Glyn Williams (2009) *Arctic Labyrinth: The Quest for the Northwest Passage* (Toronto: Viking Canada).
- ¹⁵ Grant, *Polar Imperative*, 162-63 and 168-72; for details on American explorations, see M.F. Robinson (2006) *The Coldest Crucible: Arctic Exploration and American Culture* (Chicago: University of Chicago Press).
- ¹⁶ S.R. Bown (2012) *The Last Viking: The Life of Roald Amundsen* (Vancouver: Douglas & McIntyre).
- ¹⁷ Grant, *Polar Imperative*, 115-33; see also G.G. Van Deusen (1967) *William Henry Seward* (New York: Oxford University Press), and for American expansionism, T.R. Hietala (2003) *Manifest Design: American Exceptionalism and Empire*, revised edn (New York: Cornell University Press); and W. LaFeber (1998) *The New Empire: An Interpretation of American Expansionism, 1860-1898*, revised edn (Ithaca, NY: Cornell University Press).
- ¹⁸ Grant, *Polar Imperative*, 168-73.
- ¹⁹ Discussion of Canada's annexation of Rupert's Land, the British transfer of the Arctic Islands, and Canada's actions to secure permanent title to the Arctic Islands is based primarily on archival research as cited in Grant, *Polar Imperative*, 175-246. Additional sources are noted below.
- ²⁰ Grant, *Polar Imperative*, 178-79 and 344; also John Bockstoce (1986) *Whales, Ice, and Men: The History of Whaling in the Western Arctic* (Seattle: University of Washington Press), 256-89.
- ²¹ Grant, *Polar Imperative*, 200-07; Library and Archives Canada, RG 15, vol. 1, file 'Arctic Islands', contains a copy of W.F. King (1905) *Report upon the Title of Canada to the Islands to the North of Mainland Canada* (Ottawa: Government Printing Bureau).
- ²² M. Saint-Pierre (2008) *Joseph-Elzéar Bernier 1852-1934*, translation by W. Barr (Montreal: Baraka Books).
- ²³ T. Flanagan (2013) 'Arctic Symbolism, Harper Stagecraft', *Globe and Mail* (21 August). Based on his experience as the Conservative campaign manager in the 2006 election, Flanagan describes how ambitious military spending to protect Arctic sovereignty was introduced to defeat the opposition, but without first consulting the Canadian Armed Forces, whose priority was new equipment for the war in Afghanistan.
- ²⁴ S.D. Grant (1989) 'Myths of the North in the Canadian Ethos', *The Northern Review*, 3:4, 15-41; also S.D. Grant (1998) 'Arctic Wilderness – and Other Mythologies', *Journal of Canadian Studies*, 33:2, 27-42.
- ²⁵ Grant, *Polar Imperative*, 210-21.

-
- ²⁶ For more details about the murder trials, objectives, and consequences, see S.D. Grant (2002) *Arctic Justice: On Trial for Murder, Pond Inlet, 1923* (Montreal/Kingston: McGill-Queen's University Press).
- ²⁷ Grant, *Polar Imperative*, 227-35; for details on the Byrd expedition, see N. Fogelson (1992) *Arctic Exploration and International Relations, 1920-1932* (Fairbanks: University of Alaska Press).
- ²⁸ Grant, *Polar Imperative*, 235-39.
- ²⁹ Grant, *Polar Imperative*, 240-42.
- ³⁰ As confirmed in S.W. Boggs (1933) *The Polar Regions: Geographical and Historical Data for Consideration in a Study of Claims to Sovereignty in the Arctic and Antarctic Regions*, 1990 edition (Buffalo, NY: William S. Hein & Company), 46-47. Boggs was an official in the geographical division of the State Department.
- ³¹ Grant, *Polar Imperative*, 249-51; R. Vaughan (1991) *Northwest Greenland: A History* (Orono: University of Maine Press); S. Grant (1999) 'Why the St. Roch? Why the Northwest Passage? Why 1940? New Answers to Old Questions', *Arctic*, 46:1, 82-87. For a history of U.S. forces in Greenland, see S. Conn, R. Engelman, and B. Fairchild (2000) *United States in World War II, Volume II: Guarding the United States and Its Outposts* (Washington: Government Printing Office for the Center of Military History), ch. 17. Autobiographical accounts add further details: Col. B. Balchen, Maj. C. Ford, and Maj. O. La Farge (1944) *War Below Zero: The Battle for Greenland* (Boston: Houghton Mifflin Company); or W.S. Carlson (1967) *Lifelines Through the Arctic* (New York: Duell, Sloan and Pearce).
- ³² S.D. Grant (1989) *Sovereignty or Security? Government Policy in the Canadian North, 1936-1950* (Vancouver: UBC Press), 70-102; the reference to the "army of occupation" is found in 'Notes on Developments in North-West Canada', 6 April 1943, by British High Commissioner Malcolm MacDonald, in Library and Archives Canada, W.L.M. King Papers, MG26 J4, vol. 309, file 3283.
- ³³ Grant, *Sovereignty or Security*, 103-28. For a more recent publication, see K.S. Coates et al. (2009) *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen Publishers).
- ³⁴ Grant, *Sovereignty or Security*, 129-37.
- ³⁵ For an American perspective supported by impeccable research, see J.T. Jockel (1987) *No Boundaries Upstairs: Canada, the United States, and the Origins of North American Air Defence, 1945-1958* (Vancouver: UBC Press); and Jockel (1991) *Security to the North: Canada-U.S. Defense Relations in the 1990s* (East Lansing: Michigan State University Press).
- ³⁶ U.S. Department of the Air Force, 'Department of the U.S. Air Force Fact Sheet', www.elemendorf.af.mil/library/factsheets.
- ³⁷ Grant, *Polar Imperative*, 319-32; also S.D. Grant (1990) 'A Case of Compounded Error: The Inuit Resettlement Project 1953 and the Government Response 1990', *Northern Perspectives*, 19:1, 3-29; and F. Tester and P. Kulchyski (1994) *Tammarniit (Mistakes): Inuit Relocation in the Eastern Arctic, 1939-63* (Vancouver: UBC Press).
- ³⁸ Royal Commission on Aboriginal Peoples (1994) *The High Arctic Relocation: A Report on the 1953-55 Relocation* (Ottawa: Ministry of Supply and Services); see also Aboriginal Affairs and Northern Development Canada (2008) 'Apology for the High Arctic Relocation, Speaking Notes for the Honorable John Duncan' (18 August).
- ³⁹ Grant, *Polar Imperative*, 344-57.
- ⁴⁰ Grant, *Polar Imperative*, 376-79.

⁴¹ Grant, *Polar Imperative*, 379-80; for a summary of the American perspective, see C.E. Donovan (2004) 'The Law of the Sea Treaty', Web Memo #470, The Heritage Foundation (2 April), <http://www.heritage.org>; an official Canadian summary is provided by Fisheries and Oceans Canada (2013) 'Canada's Ocean Estate, a Description of Canada's Maritime Zones', <http://www.dfo-mpo.gc.ca/oceans/marinezones>.

⁴² Inuit Circumpolar Conference (1992) *Principles and Elements for a Comprehensive Arctic Policy* (Montreal/Kingston: McGill-Queen's University Press); see also M.M. Simon (1996) *Inuit: One Future – One Arctic* (Peterborough: Cidar Press); A. Lyngø (1996) *Inuit: The Story of the Inuit Circumpolar Conference* (Nuuk, Greenland: Atuakkiorfik).

⁴³ Quotation appears in Grant, *Polar Imperative*, 411. Full document is available on the Inuit Circumpolar Council website.

⁴⁴ Commission of the European Communities (2008) 'Communication from the Commission to the European Parliament and the Council on the European Union and the Arctic Region' (Brussels: 20 November); and White House (2013) 'National Strategy for the Arctic Region', https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf.

⁴⁵ Greenland no longer provides an ethnic breakdown of its population. In 1912, however, only 12 percent reported Danish as their first language, with just over 75 percent voting for independence in 2008. See also M. Nuttall (2008) 'Self-Rule in Greenland: Towards the World's First Independent Inuit State?' *Indigenous Affairs*, 3-4, 62; and 'Divorce up North? Greenland Creeps Towards Independence' (2008) *Economist* (29 November), 55.

⁴⁶ M. Adomanis (2012) 'Russia and Norway's Increasing Cooperation in the Arctic', *Forbes* (5 May), <http://www.forbes.com/sites/markadomanis/2012/05/05/russia-and-norways-increasing-cooperation-in-the-arctic/>.

⁴⁷ Grant, *Polar Imperative*, 391-94; J. English (2013) *Ice and Water: Politics, Peoples, and the Arctic Council* (Toronto: Penguin Canada/Allan Lane).

⁴⁸ International Chamber of Shipping (2013) 'ICS Meets with Ministers to Discuss Arctic Shipping', press release, 6 June.

⁴⁹ S.G. Borgerson (2013) 'The Coming Arctic Boom: As the Ice Melts, the Region Heats Up', *Foreign Affairs* (July/August), 1-16.

⁵⁰ K. Keil (2013) 'The Questionable Arctic Bonanza: Exaggerated Hopes and False Images of the Arctic as "Prime Real Estate"', *The Arctic Institute* (Washington: 4 September), 4, accessed September 2013, <http://www.thearcticinstitute.org/2013/09/the-questionable-arctic-bonanza.html>; also: J. Lewis (2013) 'Northern promise: Cheap oil locks Canada's polar riches in deep freeze', *Financial Post* (13 August).

⁵¹ E. Regehr (2013) 'Disarming Arctic Security', *Briefing Papers for The Simon Foundation* (16 July), 1-3.

⁵² The extensive review process for mining developments in Nunavut and Nunavik has forced several companies to abandon their projects, in spite of considerable investments in excess of millions of dollars. Perhaps heartened by the success of Canadian Inuit, there have been recent protests by Alaskan Eskimos against a proposed mine, and by the Sami against a large iron ore mine in Sweden.

⁵³ Fridtjof Nansen Quotations, www.successories.com/quote/author/59676/fridtjof-nansen-quotes/1.

10

Sovereignty and Security: Canadian Diplomacy, the United States, and the Arctic, 1943-68

P. Whitney Lackenbauer and Peter Kikkert¹

By the spring of 1946, the spectre of a Soviet threat to North America loomed large in the minds of American officials, who warily cast their eyes over polar projection maps and saw an undefended attic to the continent. Ambitious defence plans for the Arctic began to flow onto the desks of Canadian officials, evoking grave concerns in the Department of External Affairs about Canada's sovereignty in the region. Lester B. Pearson, then the ambassador to the United States, believed that these defence projects offered Canada an opportunity "to secure from the United States Government public recognition of our sovereignty of the total area of our northern coasts, based on the sector principle."¹ Canada's longstanding but officially unstated sector claim to all of the lands (and eventually waters) between 60° and 141° west longitude up to the North Pole offered the simplest solution to consolidating its opaque Arctic claims.² Although Pearson was confident that he could attain from his American counterparts formal recognition on this basis, he was overly optimistic.

Unwilling to push the United States into a position where it had to disagree with Canada's claims, Hume Wrong, the acting under-secretary of state for external affairs, advised Pearson to avoid any formal attempt to secure American recognition. Not only would its Antarctic interests keep the United States from accepting the sector theory, Wrong astutely noted, but any such attempt might prompt Washington to challenge Canada's claims.³ "For a good many years now we have proceeded

¹ Originally published in *In the National Interest: Canadian Foreign Policy and the Department of Foreign Affairs and International Trade, 1909-2009*, eds. Greg Donaghy and Michael K. Carroll (Calgary: University of Calgary Press, 2011), 101-20.

without difficulty on the assumption that our sovereignty was not challenged," Wrong observed. "A declaration of this sort would revive discussion of an issue which may in practice turn out to have been closed."⁴ While Pearson had been willing to lay all of Canada's cards on the table in the hopes of attaining the optimum desired outcome, Wrong embraced a modest diplomacy that sought to shape a more sustainable, if less dramatic, solution to Canada's sovereignty worries.

The historical literature is divided along similar lines. One recent commentator has asserted that Canada should have embraced Pearson's approach in the postwar years and pressed for formal United States recognition of Canadian sovereignty in return for Canada's cooperation in the northern defence projects.⁵ Historian Shelagh Grant has suggested that Canada actually sacrificed its sovereignty to ensure American security.⁶ Such conclusions distort the context of decision-making and the nature of bilateral negotiations regarding the Arctic. Scholars David Bercuson and Elizabeth Elliot-Meisel have emphasized the cooperation, respect, and open dialogue that characterized the defence relationship after 1946 and argue that Ottawa successfully safeguarded Canada's sovereignty and effectively contributed to continental security.⁷ This paper concurs with their assessment based upon a fresh appraisal of the archival record, much of it recently declassified.

Canadian policy-makers, particularly in the Department of External Affairs, did an admirable job of balancing Canadian sovereignty interests with the security needs of the United States from the early Cold War to the eve of the *Manhattan* voyage in 1969. Although Canada did not get its way on every issue, an underlying spirit of mutual respect allowed Canada to preserve – and indeed strengthen – its sovereignty while accommodating its American ally insofar as its national interests allowed. This approach secured the United States' acquiescence to Canadian territorial sovereignty claims, despite America's rejection of the sector principle. When the emphasis shifted to maritime issues in the 1950s, the legal issues proved more intractable, but a functional approach, predicated on "agreeing to disagree" over the status of the waters of the Arctic archipelago, maintained a cooperative bilateral relationship. Rather than seeing Canadian decision-making in the 1940s and 1950s as failing to secure American acquiescence to Canada's future claim to the Northwest Passage, a more positive appraisal might recognize how careful diplomacy helped to position Canada so that it could implement a functional approach under Prime Minister Pierre Trudeau in the early 1970s and declare straight baselines under Prime Minister Brian Mulroney in 1985. While postwar diplomatic actions appear *ad hoc*, reactionary, and

tentative, they were appropriately suited to a complex situation. Officials at External Affairs acknowledged Canada's limitations but managed in steering a prudent and practical course to lay the groundwork for future assertions of Canadian jurisdiction and sovereignty in the Arctic.

The modern Canadian sovereignty debate began during the Second World War. After the Japanese attack on Pearl Harbor on 7 December 1941, the Canadian Northwest became an important strategic link to Alaska. The United States undertook a number of massive defence projects in northern Canada, including a system of airfields called the Northwest Staging Route, an oil pipeline, and the Alaska Highway. As Washington's stake in the Northwest steadily grew, the Canadian government, including the Department of External Affairs, remained as uninterested in protecting the sovereignty of the region as it had been prior to the war.

Although Liberal Prime Minister William Lyon Mackenzie King allowed the Americans onto Canadian soil with few constraints, he was always suspicious of their intentions. Worrisome reports from Malcolm MacDonald, the British high commissioner who visited the defence projects in 1943 and was alarmed at the scale of American activities, spurred the prime minister to reassert control in the Canadian North.⁸ To ensure greater control over American activities and protect Canadian sovereignty, the government appointed a special commissioner, Brigadier-General W.W. Foster, to oversee the various American defence projects in the Northwest.⁹ As the war drew to a close, Canada increased its control over the North by securing full ownership of all permanent facilities on its territory by purchasing them from the United States. The Americans also agreed that, before they began any project on or over Canadian territory, it had to be approved by the Canadian government.¹⁰ By 1945, most Americans had left Canadian territory, and the Northwest was more secure than ever.

While it is easy to condemn the government for its reactive approach to protecting Canadian sovereignty in the North during the war, it is also understandable. In the midst of a global war and suffering from a lack of experienced personnel, External Affairs had to prioritize its areas of focus. In the early years of the war, with the European theatre the overriding national preoccupation, officials did not look to the Canadian North for obvious reasons. Neither did the department plan for the difficult sovereignty issues that arose during the war, which compelled it to deal with these problems in a reactive manner. As the war progressed, however, External Affairs grew in size and sophistication and began to handle complex problems effectively, including the situation in the North.¹¹ The steep wartime learning curve paid off, and the defence negotiations of the

early Cold War proved that Canadian diplomats were both attentive and responsive to potential sovereignty encroachments.

Shortly after the defeat of the Axis powers, the wartime relationship between the Western allies and the Soviet Union began to dissolve. Canada's undesirable strategic position, sandwiched between two opposing superpowers, meant that "Canada could not stay out of a third World War if 11,999,999 of her 12,000,000 citizens wanted to remain neutral," to quote Louis St. Laurent's memorable phrase.¹² Canada had become the potential frontline of the next global conflict. "The dilemma," military historian David Bercuson has argued, was simple: "how could Canada help protect the continent against the Soviet Union – a job Ottawa agreed needed doing – while, at the same time, it protected the Canadian north against the United States?"¹³

In early May 1946, the United States proposed the establishment of a chain of weather stations in the Canadian Arctic. Despite American assurances that Canada's sovereignty would not be threatened, Canadian officials believed that American acceptance of the sector principle was the ideal way to protect Canada's interests.¹⁴ Global interests, however, made it impossible for the Americans to formally accept Canadian sovereignty in the region by sanctioning the sector principle, which was also used by the Soviet Union to claim a large section of the Arctic and by several nations to claim vast portions of the Antarctic.¹⁵ Accepting Canada's claims would have strengthened the positions of these nations to the detriment of Washington's strategic interests.¹⁶ Had Canada insisted on a formal recognition of its sovereignty, its position would have been dramatically weakened by the inevitable American rejection.

Officials in the Department of External Affairs advised against asking Washington for a formal assurance that Canada's sovereignty would not be threatened lest this indicate "that we entertain some doubts as to our claims in the Arctic."¹⁷ Instead, they set to work creating guidelines for the weather station program that would best enforce Canada's claims to the Arctic. Acknowledging American assurances that Canadian sovereignty would not be threatened, the department suggested that the venture be approved as a joint project so long as all permanent rights to any installations were retained by Canada, the majority of personnel would be Canadian, and the projects would be under Canadian command.¹⁸ This approach was consistent with the steps taken during the final years of the war to gain control of the defence projects in the Northwest. Using these proven methods, Canadian officials hoped to consolidate their country's sovereignty in the Arctic.

Although the same guidelines were laid out in a report by Chief of the General Staff Major-General D.C. Spry and accepted by the Cabinet Defence Committee, King decided to deny the American request for 1946. Acknowledging the American tendency to act swiftly and with little concern for Canada's needs when threatened, the prime minister hoped the United States would pause to evaluate Canada's difficult position. On 2 July, Ottawa informed Washington that the program had not been rejected – only deferred for the purposes of further study.¹⁹ This prime ministerial-directed policy of delaying decisions on continental defence, slowing the whole process until the complex situation could be sorted out beneficially for Canada, was a cautious but prudent one. Bold, aggressive moves (particularly ones that would have entailed significant Canadian defence expenditures) would have been out of step with the cooperative defence relationship then taking shape.²⁰

In early 1947, after careful negotiations, the two countries accepted a set of formal guidelines regulating continental defence, effectively assuring Ottawa that the United States had no desire to violate Canadian sovereignty claims in the North.²¹ In mid-February, the prime minister announced the general principles governing Canada-United States defence cooperation in the House of Commons. "As an underlying principle," King explained, "all cooperative arrangements will be without impairment of the control of either country over all activities in its territory."²² There was no mention of the sector principle; the wording of the agreement avoided such controversial language. This omission, however, did not concern the Canadians. Canada had explicit assurance that its terrestrial sovereignty in the Arctic would not be threatened.

Despite gaining solid assurances protecting Canadian sovereignty over the Arctic, External Affairs maintained a level of persistent concern about American activities in the region. The government carefully monitored all American activities in the region to ensure that nothing was done that could be perceived as a lack of Canadian control. When American aircraft attached to Operation *Polaris*, a project originally established to study the challenges related to Arctic flying, began carrying out regular reconnaissance flights and engaging in aerial photography in the Arctic in 1947, the Canadian member of the Permanent Joint Board on Defence (PJBD) argued that the Americans had strayed from the initial aims of the project and forced an apology.²³ The following year, when United States ships used the Fury and Hecla Strait without first notifying Ottawa and securing the necessary approvals,²⁴ External Affairs immediately complained to the State Department to set the matter right.²⁵ In the most effective assertion of Canada's *de facto* control of the region,

savvy diplomats at External Affairs forced the Americans to adhere to the Game Laws of the Arctic Preserve, the Scientists and Explorers Ordinance, and the Archaeological Sites Ordinance. Before Americans could hunt in the Arctic, for example, they had to seek the approval of External Affairs or the Department of Mines and Resources.²⁶ Interestingly, the original creators of the Arctic Game Preserve, especially the former under-secretary of state for external affairs, O.D. Skelton, had hoped it would prove of distinct value as an assertion of Canadian sovereignty in the North.²⁷ During the early Cold War, the Arctic Preserve fulfilled this purpose.

The Distant Early Warning (DEW) Line

The decision to build a Distant Early Warning (DEW) Line across Canada's Arctic in the 1950s posed a series of more serious sovereignty questions. As early as 1946, Canadian and American authorities had begun to consider the possibility of building a radar chain in the Arctic to give warning of any Soviet attack. In June 1954, the Canada-United States Military Study Group urged that a radar network be built stretching more than eight thousand kilometres from Alaska to Baffin Island, to provide warning of an incoming Soviet attack. By extending military outposts northward, defence planners sought to achieve strategic defence in depth.²⁸

Prime Minister Louis St. Laurent's government, already stretched thin honouring its NATO commitments in Europe and the UN police action in Korea, could not afford the kind of defence installations required to satisfy its superpower ally. The Americans would have to pay for and build the high Arctic radar network, even if three-quarters of the installation stretched across Canadian territory. But Canada did not write a blank cheque, despite the claims of some critics. Ralph Campney, the minister of national defence, explained the government's logic to the Cabinet Defence Committee on 20 January 1955: "If a substantial contribution to the operation and maintenance of the line were to be made once it had been completed and was in operation, it would not, in my view, be necessary to participate in the construction and installation phase, other than to ensure that Canadian interests were protected in the ways outlined in the proposed agreement."²⁹ Cabinet endorsed the decision on 26 January 1955 and sought a formal agreement with the United States.

Canadian negotiators reached an advantageous agreement with the Americans. Washington bore the full cost of construction but subcontracted to Canadian companies and hired Canadian civilian technicians and support staff. Canada retained title to all sites in its northland and insisted upon the right to inspect work and to approve any

change of plans. Royal Canadian Mounted Police constables and Northern Service Officers were stationed at several sites to regulate relations with the Inuit and to oversee game laws. Moreover, the United States agreed to share geological, hydrographical, and other scientific data obtained during the construction and operation phases and agreed that Canadian government ships and aircraft could use landing facilities at beaches and airstrips. Concurrently, the United States was prohibited from using the airstrips for any activity other than DEW Line support without Canadian consent. "The list of conditions read like a litany of Canadian sovereignty sensitivities and desire for control," historian Alexander Herd notes.³⁰ All told, it was a small coup for Canadian sovereignty: the Americans officially acknowledged that all of the islands in the Far North explicitly belonged to Canada. "As a result of the DEW Line Agreements," strategist R.J. Sutherland explained, "Canada secured what the United States had up to that time assiduously endeavoured to avoid, namely, an explicit recognition of Canadian claims to the exercise of sovereignty in the Far North."³¹

Although journalists and politicians on the opposition benches continued to voice concerns about sovereignty after the radar network was completed in 1957, federal officials reached mutually satisfactory solutions in Washington showing that the Americans respected Canada's insecurities about sovereignty.³² Indeed, the DEW Line contributed more to Canadian sovereignty in the North than it detracted from it. It was run in the spirit of partnership, the Royal Canadian Air Force took over the management of Canadian sections of the line in 1959, and it did not drive Canada into bankruptcy. "The capital costs of those DEW-Line stations in Canada was approximately \$350 million," Clive Baxter of the *Financial Post* noted on 23 February 1963. "This was paid for entirely by the U.S. but in almost every case, construction and transportation contracts went to Canadian firms giving northern development the biggest shot in the arm it ever had." The benefits did not end there. He reported that the Americans paid \$25-28 million annually to operate the DEW Line, with most of the money flowing into Canada. "Some 96% of the civilians employed on the line (there are only a handful of military men) are Canadians. Food supplies and airlift are bought from Canadian suppliers." During the construction phase, the DEW Line agreement required contractors to "give preference to qualified Canadian labour," and this continued during the operation phase. The employment of both Inuit and southern Canadian men, who represented 97 percent of the personnel along the Canadian section of the line by 1963, may have helped to entrench Canada's claims to "effective occupation" of its arctic.³³ In short,

historian Michael Evans aptly concluded, the agreement “allowed the United States to build and operate the DEW Line ... [and] protected the sovereignty of the Canadian government while offering financial subsidies to the Canadian economy and contributing to the development of the Canadian frontier.”³⁴

Sober assessment of the operational phase of the DEW Line should have allayed any continuing concerns about American intentions or threats to Canada’s Arctic sovereignty. International lawyer Eric Wang, a legal adviser at National Defence, visited the line in May 1969 and concluded that Canadian sovereignty had been strengthened rather than weakened as a result of the DEW Line’s existence. Touring the Canadian section of the radar network, he came away convinced that reports about the insensitivities of the Americans on the DEW Line, “and the inferences they carry about Canadian sovereignty in the North, are very misleading.”³⁵ American behaviour was both accommodating and appropriate, and Wang concluded that both countries’ interests in the radar network were compatible and mutually beneficial. In his assessment, anecdotal evidence of sovereignty encroachments and bilateral friction had been overblown:

American policy towards the DEW Line appears to be based on a desire to accommodate themselves as harmoniously and as constructively as possible into the Canadian setting which they have to operate.... Perhaps it may be possible to detect some sour notes by diligent searching. I wonder, however, whether any such problems would weigh very heavily against the important benefits which accrue to Canada from this project in the development of the North, not to speak of its essential contribution to our security. Indeed we might be tempted to congratulate ourselves (with a nod to *Professor [James] Eayrs*) for enjoying a “free ride” at least in this area of our defense activities on our own soil, without any unpleasant side effects.³⁶

Scholars should turn to environmental and socio-cultural legacies of the DEW Line, not alleged sovereignty erosion, if they wish to challenge Wang’s claim that the effects of this continental defence megaproject were overwhelmingly benign. Canadian diplomats and defence officials did not sell out vital national interests – they secured them through quiet diplomacy, a functional approach, and a process that was “cordial, respectful, and mutually beneficial.”³⁷

The Arctic Archipelago and Maritime Claims

After the conclusion of the DEW Line agreement in 1955, the federal government's primary *de jure* sovereignty concerns shifted from the mainland and archipelagic islands to the water (ice) between and around the islands. The unique geography of the Canadian Arctic made it an interesting and complicated case. Its symmetrical, unitary appearance – “practically a solid land mass intersected by a number of relatively narrow channels of water” – distinguished it from other archipelagos around the world, a British diplomatic document stated in 1958.³⁸ That same year, External Affairs' legal expert Gilles Sicotte wrote that the properties of Canada's Arctic waters made them even more unique. They were not open to navigation without extensive Canadian assistance, their ice cover was completely indistinguishable from land for most of the year, and the sea ice was lived on and moved over. The Arctic archipelago was physically, geographically, and economically tied to the mainland.³⁹ But as late as the 1950s, senior Canadian officials admitted that Canada had not clearly formulated its position with regard to sovereignty over the waters of the Arctic basin and the channels between its Arctic islands, both from “narrow national” and “international” points of view.⁴⁰ This clarification would take decades to realize.

While postwar military activities bolstered Canada's legal claims to the mainland and islands of the archipelago, the Arctic waters were an entirely different story. By agreement, American vessels that supplied the DEW Line applied for and received Canadian waivers under the *Canada Shipping Act* before they proceeded.⁴¹ Captain T.C. Pullen, serving as the commanding officer of HMCS *Labrador* at the time, was appointed a U.S. Navy task group commander and reported to a U.S. Navy admiral during the 1957 sealift. One of his jobs was to ensure that three United States Coast Guard ships got safely through the Northwest Passage. “In those days, Canadians did not react as they would now to foreign encroachment in their Arctic waters,” he reminisced thirty years later, “but they had no cause. Great care was taken by the United States to respect Canadian interests. The joint security interest in the DEW line provided a shared incentive to devise arrangements that would avoid injury to either national position.”⁴² Indeed, journalists heralded Canada's supply efforts as a “big gain for sovereignty” in that the country's involvement “immeasurably strengthens our claim to the waters between the islands.”⁴³ The simple fact that these vessels would have to pass through Canadian coastal waters to supply DEW Line stations on Canadian land made this a relatively uncontroversial arrangement that did not call into question the extent of Canada's maritime claims.

How far did Canada's territorial waters extend? The question reached the House of Commons on 5 April 1957, and External Affairs lawyer Jim Nutt explained that the seaward boundary of the internal and contiguous water boundaries of the archipelago remained unclear. "Lancaster and Viscount Melville Sounds constitute the main waterway through the Arctic Archipelago and are approximately 70 miles wide at the eastern entrance and 100 at the western entrance," he noted. "The establishment and recognition of the territoriality of these waters would seem to be tantamount, at least by implication, to the establishment and recognition of a claim to all the internal waters of the Archipelago."⁴⁴ So what waters did Canada actually claim? Senior government officials in Ottawa scrambled to find out. In the mid-1950s, the government requested copies of the original British title documents to the Arctic Islands and began to study its rights to the waters in the archipelago.⁴⁵

Before Canada formulated an official position, it had to ponder national goals and the international implications of claiming the waters and ice, as well as the underlying seabed and air space above. "In addition to any advantages," observed Gordon Robertson, the deputy minister of northern affairs and natural resources and the chairman of the Advisory Committee on Northern Development, "sovereignty would imply certain obligations including the provision of such services as aids to sea and air navigation, the provision of any necessary local administration, and the enforcement of law" – in other words, the expenditure of public money. In response, the Soviet Union might either reject the claim or use it as a pretext to assert sovereignty over an even larger sector north of its mainland, and other countries would likely refuse to recognize a Canadian claim.⁴⁶ Indeed, reporters recognized that "the Russians would like nothing better than to stir up a row between Uncle Sam and Canada over who owns the Arctic ice and sea on our side of the North Pole."⁴⁷

Canadian diplomats recognized that pushing for clarity and trying to secure American and other countries' acquiescence to Canadian claims was not a straightforward matter. As the Legal Division reported to the acting under-secretary on 23 February 1954, a formal solicitation carried "an implication that we may have some doubts regarding our sovereignty in the absence of formal recognition by foreign states."⁴⁸ Another departmental memorandum noted that it was almost a "certainty that the United States would not concede such a claim and that the world at large would not acquiesce in it. It would therefore seem preferable not to raise the problem now and to implicitly reserve our position in granting permission for the U.S. to carry out work in Canadian territorial waters." It made more sense for Canada to reach agreements with Washington on

“the unstated assumption that ‘territorial waters’ in that area means whatever we may consider to be Canadian territorial waters, whereas the U.S. does likewise.”⁴⁹ Provoking protests from foreign countries would hardly serve Canada’s national interests, and the longer Canada exercised authority the stronger its claims would become.

Canada could not pretend to exist in a vacuum, its sovereignty issues divorced from broader geostrategic considerations. Claiming a twelve-mile territorial sea, for example, would place Canada in conflict with British challenges to the Soviet Union regarding fishing rights up to a three-mile limit.⁵⁰ As a member of the Commonwealth and fellow North Atlantic Treaty Organization (NATO) ally, Canada was not anxious to undermine Britain’s position. In addition, transits of the Northwest Passage by U.S. Navy submarines demonstrated the great strategic importance of the Arctic to Canada’s closest defence partner. The Arctic Ocean, covered by a dense and noisy ice pack, sheltered submarines from aerial surveillance and sonar detection – important considerations with the introduction of submarine-launched ballistic missiles (SLBMs). Commander James F. Calvert of the submarine USS *Skate* told public audiences that the United States could “best hold its world leadership by gaining superiority in the Arctic,” and that the Arctic waters would soon become an “entirely nuclear sub-ocean.” While this was not official policy, it indicated to Canadian officials that the American government would take “ever increasing interest” in the region.⁵¹

What imperative was there for Canada to act unilaterally and adopt straight baselines to close off its Arctic waters, in advance of international law, and with little regard for its allies’ interests? In 1958, the International Conference on the Law of the Sea adopted Article 4 of the Convention on Territorial Waters, which provided for a straight baseline system to delimit its territorial sea. This, in conjunction with the International Court of Justice (ICJ) decision in the *Anglo-Norwegian Fisheries Case* (1951), might apply to the waters of the channels between the islands of the Canadian Arctic Archipelago – but not to the Polar Basin lying north of Canadian land territories. Canada had insisted during the deliberations that the baselines not be limited to twenty-four miles, given that bridging the straits between the Arctic islands would require “much longer baselines than that – the longest across Viscount Melville Sound would be about 200 miles.” Such legal ambiguity meant that boldness would not necessarily serve in Canada’s best interests.⁵² In 1959, Gordon Robertson presciently speculated that in the future, the discovery of resources in the archipelago, the closing of the Panama Canal, or the development of an open polar sea might raise the stakes and incline Canada to act unilaterally.⁵³ Robertson’s

analysis was sound and remains as pertinent today as it was in 1959. It was, of course, inherently speculative, and to cajole allies on the basis of hypothetical threats to national sovereignty rooted in questionable legal claims to water (rather than physical security threats) would be unrealistic and difficult.

By the late 1950s, External Affairs saw "little advantage and numerous disadvantages to the assertion by Canada of the claim to the waters of the [Polar Basin lying north of the Canadian mainland], at least at the present time," because "it would undoubtedly stir up international controversy." International law did not justify it, and the conditions in the region made such a claim "next to impossible to enforce." By contrast, it saw a strong case for asserting Canadian sovereignty over the waters between the Arctic islands. The "main stumbling block" would be the United States, which would presumably insist upon "free navigation" through the Northwest Passage. "However, it is not impossible perhaps that quiet negotiations with the United States leading to the granting of special privileges in ... these waters might achieve reluctant acquiescence from them." In conclusion, Under-Secretary of State for External Affairs Norman Robertson, who had recently returned to Ottawa after a stint as the ambassador in Washington, "thought that it would be in no nation's interest to invite an international wrangle, comparable perhaps to the one now going on concerning the Antarctic, by laying controversial claims to the waters and ice of the Arctic Basin."⁵⁴

In the 1960s, Lester Pearson's Liberal government continued to officially endorse a three-mile territorial sea, but it also announced its intention to expand its control beyond those limits by unilaterally creating a nine-mile fishing zone adjacent to its three-mile territorial sea. Although the government introduced legislation to this effect and instituted an exclusive fishing zone based upon straight baselines along the east and west coasts, it retreated from making any moves to do the same in the Arctic. The government knew that the United States would object if Canada made any internal waters claim or declared straight baselines, but it hoped that the Americans might support an extension of Canada's claim to Arctic waters for reasons of defence and national security. The United States, however, reacted sharply, fearing that any move in the Arctic could set a dangerous precedent. The Canadian government thus retreated from its plans, and Canada did not officially issue any geographical coordinates to delineate its claim to baselines in the Arctic for another twenty-three years.⁵⁵

Conclusions

Was this policy of caution, predicated on the uncertain status of Canada's possible internal waters claims in international law and the views of its allies, a failure? Commentators who suggest that Canada *should* have secured its claims more effectively, given that Canada *could* have acted differently, and that this *would* have yielded a stronger Canadian claim today, are practising "what if" history.⁵⁶ We must weigh our judgments on the basis of the relationships that existed at the time, prevailing norms of international law, and cost-benefit analyses of possible courses of action.

Our reading of the evidence suggests that Canada's cautious and gradualist strategy, avoiding internecine battles with our American allies over controversial legal issues like the sector principle, allowed the country to perfect its terrestrial sovereignty in the postwar period. External Affairs officials were well aware of the implications of their decisions, kept American indiscretions in perspective without succumbing to popular alarmism, and devised a modest strategy for expanding and entrenching Canada's claims. There is no indication that Washington was prepared to accept the sector principle in the postwar period, which undergirded much of Canada's confused stance on its possible maritime claims until the 1950s. Indeed, historian Gordon W. Smith, writing in the mid-1960s, found it "difficult to understand why Canadian authorities have continued to trifle with the sector principle, and it is even more difficult to understand why attempts have been made, as indicated by various official decrees, pronouncements, and maps, to try to apply it to regions other than land."⁵⁷

While international law evolved to include the possibility of straight baselines, any Canadian case would have been precarious in the 1950s and 1960s. "Under general international law and particularly the decision of the International Court of Justice in the Anglo-Norwegian Fisheries Judgment, a case could be made for treating the Arctic Archipelago as a whole with the mainland and measuring the territorial sea from straight base lines drawn about the coastline of the outer circumference of the Archipelago," a March 1959 legal appraisal concluded. Yet "the insufficiency of evidence of a longstanding and unequivocal [Canadian] intention to assert sovereignty over these waters," particularly vis-à-vis foreign states, would bring close scrutiny.⁵⁸ Instead, quiet diplomacy allowed Canada to avoid alienating its allies and circumpolar neighbours, contribute to continental defence, and to lay the groundwork for the functional approach initiated under Trudeau in the wake of the *Manhattan*

voyages and the straight baselines invoked by Mulroney's Conservatives in the wake of *Polar Sea*.

Franklyn Griffiths and other commentators continue to suggest that a functional Canadian approach to managing and controlling its internal waters, based on "agreeing to disagree" with the Americans on the legal status of the Northwest Passage, remains a feasible and realistic option. They usually turn to the 1988 Cooperation Agreement on icebreaker transits as evidence of bilateral willingness to forge a working compromise by avoiding core legal entanglements.⁵⁹ They might also look earlier, to the first two decades of the Cold War, when Canada and the United States found space to coexist in the name of continental defence without prejudice to their respective legal positions. The United States acknowledged that the Arctic Archipelago belonged to Canada without validating the Canadian sector principle. Canada was more vague on its claims to the Arctic waters, but based upon the available evidence (which is avowedly partial), it avoided placing the United States in a position where it had to formally challenge Canada's sovereignty claims. Slowly establishing rights to Arctic waters without provoking foreign legal protests, the *Financial Post* explained in October 1958, was a prudent course. If all went well, "About 1980 we can say: 'Of course this is a Canadian territorial sea. Everyone has acknowledged this for 20 years.'" ⁶⁰ Rather than seeing Canadian decision-making as a failure to secure its claim to the Northwest Passage in the 1960s, a more positive appraisal might recognize how careful diplomacy helped to position Canada so that it could implement a functional approach under Trudeau and declare straight baselines under Mulroney.

Notes

¹ Ambassador in the United States to Acting Under-Secretary of State for External Affairs (USSEA), 5 June 1946, in *Documents on Canadian External Relations (DCER)*, vol. 13: 1946, ed. Norman Hillmer and Donald Page (Ottawa: Minister of Supply and Services, 1993), 1565-66.

² On the sector principle, see Donat Pharand, *Canada's Arctic Waters in International Law* (Cambridge: Cambridge University Press, 1988), 3-87.

³ H.H. Wrong to A.D.P. Heeney, 8 June 1946, Department of External Affairs Records (DEAR), vol. 3347, file 9061-A-40, pt. 1, Library and Archives Canada (LAC).

⁴ H.H. Wrong to D.C. Abbott, 13 June 1946, DEAR, vol. 3347, file 9061-A-40, pt. 1, LAC.

⁵ Adam Lajeunesse, "Lock, Stock, and Icebergs? Defining Canadian Sovereignty from Mackenzie King to Stephen Harper," CMSS Occasional Paper No. 1 (Calgary: Centre for Military and Strategic Studies, 2007), 6-7; Adam Lajeunesse, "The True North as

Long as It's Free: The Canadian Policy Deficit 1945–1985" (M.A. thesis, University of Calgary, 2007), 42, 59-60.

⁶ Shelagh Grant, *Sovereignty or Security? Government Policy in the Canadian North, 1936–1950* (Vancouver: UBC Press, 1988).

⁷ Elizabeth Elliot-Meisel, *Arctic Diplomacy: Canada and the United States in the Northwest Passage* (New York: Peter Lang, 1998); David Bercuson, "Continental Defence and Arctic Sovereignty, 1945–1950: Solving the Canadian Dilemma," in *The Cold War and Defence*, ed. Keith Neilson and Ronald Haycock (New York: Praeger, 1990), 153-70.

⁸ Elliot-Meisel, *Arctic Diplomacy*, 43.

⁹ Stanley Dziuban, *Military Relations Between the United States and Canada 1939–1945* (Washington: Office of the Chief of Military History, 1959), 138. Several scholars have speculated that the United States government had a diabolical agenda for the Canadian North. See Grant, *Sovereignty or Security*, 185; Donald Creighton, *The Forked Road: Canada, 1939–1957* (Toronto: McClelland & Stewart, 1976), 74. The American response to these Canadian initiatives, if one avoids the lure of the "conspiratorial view" of history, was not a cause for concern but cautious optimism. They were actually encouraged by the involvement of Brigadier-General Foster in defence planning.

¹⁰ Whitney Lackenbauer, "Right and Honourable: Mackenzie King, Canadian–American Bilateral Relations, and Canadian Sovereignty in the Northwest, 1943-1948," in *Mackenzie King: Citizenship and Community*, ed. J. English, K. McLaughlin, and W. Lackenbauer (Toronto: Robin Brass Studio, 2002), 154.

¹¹ Elliot-Meisel, *Arctic Diplomacy*, 56.

¹² Lt. Colonel Bernd Horn, "Gateway to Invasion or the Curse of Geography? The Canadian Arctic and the Question of Security, 1939–1999," in *Forging a Nation: Perspectives on the Canadian Military Experience*, ed. Bernd Horn (St. Catharines: Vanwell Publishing, 2002), 318.

¹³ Bercuson, "Continental Defence and Arctic Sovereignty," 155.

¹⁴ Memorandum from Head, Third Political Division Legal Division, 1 January 1946, in Donald Page, ed., *DCER*, vol. 12: 1946 (Ottawa: Minister of Supply and Services, 1977); L.B. Pearson to H.H. Wrong, 18 June 1946, DEAR, 86-87/159, box 41, file 9057-C-40, pt. 4, LAC.

¹⁵ As Gordon Smith defined the sector principle, "Each state with a continental Arctic coastline automatically falls heir to all islands lying between this coastline and the North Pole, which are enclosed by longitudinal lines drawn from the eastern and western extremities of the same coastline to the Pole." The Canadians used the Sector Principle to support their claims in the Arctic, despite its dubious veracity in international law. See Gordon W. Smith, "Sovereignty in the North: The Canadian Aspect of an International Problem," in *The Arctic Frontier*, ed. R.St.J. Macdonald (Toronto: University of Toronto Press, 1966).

¹⁶ A close contemporary parallel to this is the position of the United States on the Northwest Passage. If the Americans accept Canada's position on the passage and allow it to be treated as Canadian internal waters, a precedent would be set for more strategically important straits throughout the world. Strategic and political implications make it unlikely that the United States will accept the Northwest Passage as Canadian internal waters, just as similar considerations kept the United States from accepting the sector principle in 1946. See Ken Coates, Whitney Lackenbauer, William Morrison, and Greg Poelzer, *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen, 2008), 83.

-
- ¹⁷ Note for Mr. Wrong: Proposed Arctic Weather Station Programme, 27 May 1946, DEAR, vol. 3346, file 9061-A-40C, pt. 1, LAC.
- ¹⁸ Memorandum for Cabinet Defence Committee, "United States Proposals for an Arctic Weather Station Programme," from External Affairs, 30 May 1946, DEAR, vol. 3346, file 9061-A-40C, pt. 1, LAC.
- ¹⁹ "Memorandum – United States Proposals for Weather Stations in the Arctic," 4 July 1946, DEAR, vol. 3346, file 9061-A-40C, pt. 1, LAC.
- ²⁰ On this era, see Joseph T. Jockel, "The Canada–United States Military Co-operation Committee and Continental Air Defence, 1946," *Canadian Historical Review* 64, no. 3 (1983): 352-77; and David Bercuson, *True Patriot: The Life of Brooke Claxton, 1898–1960* (Toronto: University of Toronto Press, 1993), 153-74.
- ²¹ Bercuson, "Continental Defence and Arctic Sovereignty," 161. By March 1947, the Cabinet approved the construction of Arctic weather stations and three Long Range Aid to Navigation (LORAN) posts, adopting the parameters suggested by External Affairs. Although External Affairs has been praised for its use of the functional principle in international politics, it also applied the principle to the new defence projects in the North, insisting that as soon as qualified Canadian personnel could be trained, they would replace the Americans. L.B. Pearson to Ray Atherton, 22 December 1947; D.M. Johnson to Mr. Rae, 25 April 1947, DEAR, vol. 3841, file 9061-A-40, pt. 2, LAC. Eventually, functionalism would also be applied to Arctic re-supply missions, with the Canadians gradually assuming more responsibility for northern airlifts and building an icebreaker to assist in naval expeditions.
- ²² House of Commons, *Debates*, 12 February 1947.
- ²³ Secretary of the American Section, PJBD, to Secretary of the Canadian Section, PJBD, 23 December 1947, in *DCER*, vol. 14: 1947, ed. Norman Hillmer and Donald Page (Ottawa: Minister of Supply and Services, 1994), 1523.
- ²⁴ D.M. Johnson to Mr. Magaan, 13 October 1948, DEAR, vol. 3841, file 9061-G-40, LAC.
- ²⁵ Maagan to William P. Snow, 11 October 1948, DEAR, vol. 3841, file 9061-G-40, LAC.
- ²⁶ See, for example, John P. Kelsall to Lewis, 31 August 1948, RG 85, vol. 302, file 1009-5, vol. 1, LAC.
- ²⁷ O.D. Skelton, USSEA, to O.S. Finnie, Director Northwest Territories and Yukon Branch, Department of the Interior, 2 September 1926, DEAR, vol. 4252, file 9057-40, pt. 2, LAC.
- ²⁸ The concept and diplomatic negotiations that led to the postwar radar networks are well covered in Joseph Jockel, *No Boundaries Upstairs: Canada, the United States, and the Origins of North American Air Defence, 1945–1958* (Vancouver: UBC Press, 1987).
- ²⁹ Minister of National Defence, Memorandum to the Cabinet Defence Committee in *DCER*, vol. 21: 1955, ed. Greg Donaghy (Ottawa: Canada Communication Group, 1999), 756-57.
- ³⁰ Alexander W.G. Herd, "As Practicable: Canada–United States Continental Air Defense Cooperation 1953–1954" (M.A. thesis, Kansas State University, 2005), 86.
- ³¹ R.J. Sutherland, "The Strategic Significance of the Canadian Arctic," in *The Arctic Frontier*, 271.
- ³² James Eayrs, "Problems of Canadian–American Relations," in *Canada in World Affairs October 1955 to June 1957*, ed. James Eayrs (Toronto: Oxford University Press, 1959), 151.
- ³³ John Nicholas Harris, "National Defence and Northern Development: The Establishment of the DEW Line in the Canadian North" (M.A. thesis, Simon Fraser University, 1980), 160.

-
- ³⁴ Michael William Evans, "The Establishment of the Distant Early Warning Line, 1952–1957: A Study of Continental Defense Policymaking" (M.A. thesis, Bowling Green University, 1995), 72.
- ³⁵ E.B. Wang, "The Dew Line and Canadian Sovereignty," 26 May 1969, DEAR, file 27-10-2-2, pt. 1, LAC.
- ³⁶ Italics in the original. E.B. Wang, "The Dew Line and Canadian Sovereignty," 26 May 1969, DEAR, file 27-10-2-2, pt. 1, LAC.
- ³⁷ Evans, "Establishment of the DEW Line," 76.
- ³⁸ W.G. Lamarque to G. Sicotte, 5 March 1958, DEAR, vol. 7118, file 9057-40, pt. 9.2, LAC. Donat Pharand calculates that, in Canada's case, the close link between land and sea necessary to draw straight baselines is very strong. The sea to land ratio is 0.822 to 1, much better than the 3.5 to 1 ratio for the Norwegian Archipelago upon which the original legal decision was based. Furthermore, he notes that "the quasi-permanency of the ice over the enclosed waters bolsters the physical unity between land and sea." Donat Pharand, "The Arctic Waters and the Northwest Passage: A Final Revisit," *Ocean Development & International Law* 38, no. 1-2 (2007): 18.
- ³⁹ G. Sicotte to W.G. Lamarque, 14 April 1958, DEAR, vol. 7118, file 9057-40, pt. 9.2, LAC.
- ⁴⁰ G.W. Rowley, Memorandum for the Advisory Committee on Northern Development, "Canadian Sovereignty in the Arctic Basin and the Channels Lying Between the Islands of the Arctic Archipelago," 16 September 1958, DEAR, vol. 7118, file 9057-40, pt. 9.2, LAC.
- ⁴¹ J.M. Leeming, "HMCS Labrador and the Canadian Arctic," in *RCN in Retrospect*, ed. James A. Boutilier (Vancouver: UBC Press, 1982), 286-307; Louis St. Laurent, House of Commons *Debates*, 6 April 1957, excerpted in "Public Statements regarding Arctic Sovereignty," c. June 1960, copy on DEAR, vol. 7118, file 9057-40, LAC.
- ⁴² T.C. Pullen, "What Price Canadian Sovereignty?" *U.S. Naval Institute Proceedings* 113 (September 1987): 68.
- ⁴³ Leslie Wilson, "Canada Supplying Arctic: Big Gain for Sovereignty," *Financial Post*, 27 September 1958.
- ⁴⁴ J.S. Nutt, Memorandum for File: Arctic Territorial Waters, 9 April 1957, DEAR, vol. 6510, file 9057-40, pt. 6.2, LAC.
- ⁴⁵ R.G. Robertson to Jules Leger, 8 March 1955; M.H. Wershof to R.G. Robertson, 3 March 1955, DEAR, vol. 6510, file 9057-40, pt. 5.1, LAC.
- ⁴⁶ R.G. Robertson, draft letter, c. fall 1958, DEAR, vol. 6510, file 9057-40, pt. 7, LAC.
- ⁴⁷ "Arctic Sovereignty: Canada Ownership of Polar Islands Tacitly Recognized," *Montreal Star*, 8 August 1958.
- ⁴⁸ Legal Division to Acting Under-Secretary of State for External Affairs (USSEA), 23 February 1954, DEAR, vol. 6297, file 9057-40, pt. 4.2, LAC.
- ⁴⁹ Memorandum for file 50,0370-40, "U.S. Request for Permission to Make Submarine Installations off Cape Dyer, Baffin Island in connection with the BMEWS Cable to Thule," 29 July 1958, DEAR, vol. 6510, file 9057-40, pt. 7.1, LAC. Since no study on the status of the Arctic waters (particularly those in the archipelago) had been completed, G. Sicotte noted on 30 April 1956 that "no formal action should be taken regarding possible Canadian claims to waters in the Arctic at the present time." He recommended that no department, however, take any action which could compromise an eventual Canadian internal waters claim. "For present purposes," he noted, "these waters might be taken as those lying within a line commencing at Resolution Island, south east of Baffin Island and running from headland to headland in a rough triangle

north to the top of Ellesmere Island and thence south west to Banks Island and the Arctic coast of Canada." G. Sicotte for the USSEA to Canadian Embassy, Copenhagen, Denmark, 30 April 1956, DEAR, vol. 6510, file 9057-40, pt. 6.2, LAC.

⁵⁰ Soviet Section, Arthur Ford, noted in an April 1955 memo (NS.1521/15, USSR. 178/55), DEAR, vol. 6510, file 9057-40, pt. 6.1, LAC.

⁵¹ Washington to External Affairs, 10 October 1958, DEAR, vol. 6510, file 9057-40, pt. 7.1, LAC.

⁵² R.G. Robertson to USSEA, 30 October 1958, DEAR, vol. 7118, file 9057-40, pt. 8, LAC.

⁵³ R.G. Robertson to USSEA, "Arctic Sovereignty," 3 July 1959, DEAR, vol. 6510, file 9057-40, pt. 6.2, LAC.

⁵⁴ USSEA to R.G. Robertson, 17 December 1958, DEAR, vol. 7118, file 9057-40, pt. 8, LAC. General Charles Foulkes, the Chairman, Chiefs of Staff, also raised concerns about foreign "sector" claims that could deny Canada "freedom of passage by sea to parts of our northland and Arctic reconnaissance would be very limited." Draft, Foulkes to Chairman, Advisory Committee on Northern Development, 12 December 1958, DEAR, vol. 7118, file 9057-40, pt. 8, LAC.

⁵⁵ Territorial Sea and Fishing Zones Act, 22, 1964-65 S.C. 153 (1964); Margaret W. Morris, "Boundary Problems Relating to the Sovereignty of the Canadian Arctic," in *Canada's Changing North*, ed. William C. Wonders (Toronto: McClelland & Stewart, 1971), 322; Smith, "Sovereignty in the North," 236-37; and Elliot-Meisel, *Arctic Diplomacy*, 140.

⁵⁶ See, for example, Lajeunesse, "The True North as Long as It's Free," 60.

⁵⁷ Smith, "Sovereignty in the North," 226.

⁵⁸ J.S. Nutt, "Status of the Waters of the Canadian Arctic Archipelago," 9 March 1959, DEAR, vol. 7118, file 9057-40, pt. 8, LAC.

⁵⁹ On 11 January 1988, External Affairs Minister Joe Clark and United States Secretary of State George Shultz announced an Agreement on Arctic Co-operation that was carefully framed to avoid prejudicing the legal claims of both sides. The United States agreed to seek Canadian consent before its icebreakers navigated in what Canada considered to be its internal waters, based on the principle that these were scientific missions of mutual benefit to both countries. See Christopher Kirkey, "Smoothing Troubled Waters: The 1988 Canada-United States Arctic Co-operation Agreement," *International Journal* 50 (1995): 408-26, and David L. Larson, "United States Interests in the Arctic Region," *Ocean Development and International Law* 20 (1989): 183-84.

⁶⁰ "Do We Own Water and Ice around Arctic Islands?," *Financial Post*, 10 October 1959.

11

Canada, the United States, and International Law of the Sea in the Arctic Ocean

Ted L. McDorman*

Introduction

Canada and the United States have a complex relationship respecting international law of the sea issues in the Arctic Ocean. One certainty is that the two states agree on the international legal and governance architecture that applies to the Arctic Ocean. This was made clear in the unfairly maligned 2008 Ilulissat Declaration involving Canada and the United States together with Denmark/Greenland, Norway, and the Russian Federation.

[T]he law of the sea provides for important rights and obligations concerning the delineation of the outer limits of the continental shelf, the protection of the marine environment, including ice-covered areas, freedom of navigation, marine scientific research, and other uses of the sea. We remain committed to this legal framework and to the orderly settlement of any possible overlapping claims. This framework provides a solid foundation for responsible management by the five coastal States and other users of this Ocean through national implementation and application of relevant provisions. We therefore see no need to

* Originally published in *Polar Oceans Governance in an Era of Environmental Change*, eds. Tim Stephens and David L. VanderZwaag (Cheltenham: Edward Elgar, 2014), 253-68. Professor McDorman wrote this article while on secondment to the Bureau of Legal Affairs of the Canadian Department of Foreign Affairs and International Trade. The contents and views in this chapter are personal and do not reflect the views or opinions of the Bureau of Legal Affairs, the Department of Foreign Affairs and International Trade, or the Government of Canada.

develop a new comprehensive international legal regime to govern the Arctic Ocean.¹

This endorsement of the prevailing law of the sea, based primarily on the 1982 United Nations Convention on the Law of the Sea (LOSC),² applying to the Arctic Ocean, came when there was much public discussion concerning a perceived unrestrained and potentially explosive “race for resources” in the Arctic Ocean and the mooted possibility of the need or desire for a regime similar to the Antarctic Treaty³ applying in the Arctic Ocean.

The Ilulissat Declaration has not precluded the creation of issue-specific agreements for the Arctic Ocean, as is evidenced by the 2011 Arctic Search and Rescue Agreement⁴ and the 2013 Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. These accords had their origin in the Arctic Council, a body in which both Canada and the United States are active.⁵ Canada takes the chair of the Council in 2013, to be followed by the United States in 2015.

The public history of the Canada-United States Arctic law of the sea relationship commenced in 1969-70 with the trek of the refitted tanker *Manhattan* through the Northwest Passage. As explained by two Canadian participants, “The Arctic became front-page news as long-dormant Canadian nationalism found cause and focus. Before the sequence of events concluded, the Northwest Passage was destined to arouse within Canada an unprecedented volume of popular outcry.”⁶ The issue was Canadian “sovereignty.” What followed, the enactment by Canada of the Arctic Waters Pollution Prevention Act,⁷ was seen as a unilateral assertion of jurisdiction over shipping out to one hundred nautical miles and led, as one of the participants described, to “what may be one of the most acerbic exchanges in the history of diplomatic communications between the two countries.”⁸ Shortly thereafter, in 1973, Canada clearly asserted for the first time that the waters within the Arctic Archipelago, including the Northwest Passage, were historic internal waters⁹ and subject to Canada’s absolute jurisdiction, as opposed to the Passage being, as asserted by the United States, a strait used for international navigation.¹⁰

The events of the early 1970s have coloured much of the subsequent history of the Canada-United States ocean law engagement in the Arctic Ocean, both in terms of the issues in question and also, for Canada, that Arctic sovereignty (whatever its meaning) has to be protected aggressively, particularly vis-à-vis the United States, to prevent public outcry. Nevertheless, the two states have cooperated on key Arctic Ocean activities and, most importantly, have been able to avoid having the legal

disputes escalate into serious confrontational matters or ones that overly burden an already full bilateral agenda.

The purpose of this modest contribution is not to provide a detailed critique of the different views of Canada and the United States on the well-known Arctic Ocean law disputes. Rather, the goal is to provide some brief comments and an update on the well-known issues – the Beaufort Sea and the Northwest Passage – and indicate the parameters of the more recent international legal dispute between the two states respecting the application of Article 234 of LOSC, the so-called “Arctic exception.”

*The Beaufort Sea and the Continental Shelf Beyond Two Hundred Nautical Miles*¹¹

The detail of the overlapping offshore claims of Canada and the United States in the Beaufort Sea emerged in the late 1970s when the two states legislated their two-hundred-nautical-mile zones. Canada constructed its two-hundred-nautical-mile zone in the Beaufort Sea utilizing the 141st meridian, which is the land boundary between Alaska and the Yukon as set out in Article III of the 1825 Russia-Great Britain Treaty,¹² applicable to the United States as a result of the United States’ acquisition of Alaska from Russia in 1867.¹³ Canada’s view is that the 141st meridian is the maritime boundary in the Beaufort Sea based on the 1825 Treaty’s wording for a boundary along the meridian “in its prolongation as far as the Frozen Ocean” (“dans son prolongement jusqu’à la Mer Glaciale” – the authentic language of the Treaty is French).¹⁴ The United States asserts that it has consistently rejected that either the 1825 or 1867 treaties established an ocean boundary in the Beaufort Sea.¹⁵ The United States’ two-hundred-nautical-mile zone in the Beaufort Sea utilizes a strict equidistance line.¹⁶ The area of overlap is estimated at 6,250 square nautical miles.¹⁷

It is clear that the legal continental shelf extends beyond two hundred nautical miles adjacent to the overlapping claims of the two states. Both states are engaged in research activities respecting the mapping of the seafloor and the application of the criteria in Article 76 of LOSC respecting the outer limit of a state’s shelf area beyond two hundred nautical miles. Much of this research has been done cooperatively since 2008, when it was agreed that Canadian and United States icebreakers and research teams would work together in activities designed to map seafloor areas north of the Beaufort Sea.¹⁸

While neither state has indicated claimed areas of shelf beyond two hundred nautical miles, a projection beyond two hundred nautical miles of Canada’s position of the use of the 141st meridian is beneficial to the United States; a projection beyond two hundred nautical miles of the

United States' position of the use of an equidistance line is beneficial to Canada.¹⁹

In early 2010, there were media reports in Canada of the possibility of Beaufort Sea maritime boundary negotiations with the United States.²⁰ In November 2010, Canada's then foreign minister, in answer to a question before the Canadian Standing Senate Committee on National Security and Defence, stated:

This is about the Beaufort Sea dispute.... I had discussions with Secretary of State Clinton. We agreed it would be a worthwhile exercise, first and foremost, to bring together our officials to exchange information on a number of issues particularly related to the matter. We also agreed that it was important to complete the mapping of the continental shelf, particularly in that area, before we engage in a more formal type of what one would assume to be discussions or negotiations.²¹

*Northwest Passage*²²

The international legal issue as regards the Northwest Passage is the extent of control that Canada can exercise respecting foreign vessels navigating through the Passage. There is no question that the waters of the Passage are under the jurisdiction of Canada such that Canada has exclusive authority as regards all living and non-living resources within the Passage. It is the Canadian view that the waters within the Arctic Archipelago, which includes the Northwest Passage, are historic internal waters.²³ The baselines around the Arctic Archipelago promulgated by Canada in 1985 delineate the outer limit of Canada's historic internal waters.²⁴ As a result, Canada asserts absolute jurisdiction over all foreign vessels within the Northwest Passage, and, in particular, foreign vessels can be required to request and receive the permission of Canada to utilize the Passage. As Canada is not interested in prohibiting vessel navigation in the Northwest Passage, what Canada asserts is that all vessels using the Passage comply with the relevant Canadian laws.

It is the United States' view that the waters within Canada's Arctic Archipelago do not meet the requirements of historic waters and that the 1986 baselines are inconsistent with international law.²⁵ As already noted, it is the United States' position that the Northwest Passage is a strait used for international navigation,²⁶ a stance that has been consistently maintained, including in a recent (August 2010) diplomatic note.²⁷ Thus, according to the United States, foreign-flagged vessels engaged in through-traffic of the Northwest Passage, while subject to Canadian laws, are not required to request and receive the permission of Canada to utilize

the waterway, and the applicable Canadian laws cannot impede the navigation.

Regardless of the divergent legal positions of the two states, it is important to note that they have had significant success in “managing” the differences. A testament to this is the 1988 Arctic Cooperation Agreement that deals with U.S. Coast Guard icebreaker traffic in the Northwest Passage.²⁸ This Agreement, however, is essentially an “agreement-to-disagree” and, while operationally and politically important, does not resolve the underlying differences held by the two states regarding the existence of a navigational right in or the international legal status of the Passage.²⁹

It is worth noting that while the United States sees the Northwest Passage in terms of its global aspirations, Canada sees the Northwest Passage as a local issue. Canada has pursued its position primarily in terms of the special and unique characteristics of the Northwest Passage (and Arctic), the differences between the Passage and other waterways,³⁰ and Canada’s responsibilities in adjacent waters.³¹

Article 234 of the Law of the Sea Convention

Background³²

It has been observed that as regards LOSC, “The fact that the Arctic rarely received specific mention [at the negotiations] – by virtue of an unspoken “gentleman’s agreement” among Arctic and non-Arctic nations – took little away from the general applicability of the Convention to the Arctic.”³³ Uwe Jenisch wrote in a paper published in 1985 that:

it has to be maintained that the Arctic clearly is regulated by the international law of the sea. Throughout the LOS Conference, there were no objections to the full application of the new law to Arctic waters. The Conference avoided any tendencies to establish a ‘special’ or ‘regional’ regime for polar seas, with the sole exception of art. 234 dealing with ‘ice-covered waters’.³⁴

For Canada, the “dominant objective” during the negotiation of LOSC was acceptance of an Arctic waters regime³⁵ that would support the 1970 Arctic Waters legislation and provide Canada with international legal justification for the action taken to protect the Arctic marine and terrestrial environment from vessel-source pollution.³⁶ This was accomplished through Article 234, the so-called “Arctic exception,” carefully negotiated between Canada, the United States, and the Soviet Union.³⁷ The negotiation of Article 234 is an important example of the ability of Canada and the United States to find ways of managing Arctic Ocean legal disputes.

The United States has explicitly accepted that Article 234 is part of customary international law³⁸ and has noted that:

The purpose of article 234 ... is to provide the basis for implementing the provisions applicable to commercial and private vessels found in the 1970 Canadian Arctic Waters Pollution Prevention Act ..., while protecting fundamental U.S. security interests in the exercise of navigational rights and freedom throughout the Arctic.³⁹

A complex legal issue is the relationship between Article 234 and the international straits regime, the latter of which constrains the vessel-source pollution control laws that an adjacent state can adopt and enforce. It has been asserted that the international straits regime in LOSC "is not applicable to the Northwest Passage,"⁴⁰ with the result that national laws permitted to be adopted pursuant to Article 234, such as Canada's Arctic Waters legislation, apply to commercial vessels utilizing the Northwest Passage even if, despite Canada's objections, the Northwest Passage is an international strait. McRae has summarized that the Northwest Passage being an international strait, the position of the United States, "would have little impact on Canada's legal authority to regulate commercial shipping" pursuant to Article 234.⁴¹ In support of this view, the United States has acknowledged that United States commercial ships are subject to Canada's Arctic Waters legislation with no distinction made as regards the Northwest Passage.⁴²

There are a number of elements of Article 234:

- a coastal state can adopt and enforce within its two-hundred-nautical-mile zone laws containing more stringent standards than the internationally accepted rules;
- this is a unilateral right of the coastal state and not subject to pre-approval or review by the International Maritime Organization (IMO) or any other international body;⁴³
- warships and other government vessels are exempted from the laws;
- the laws are to be non-discriminatory;
- the laws are to be for "the prevention, reduction and control of marine pollution from vessels in ice-covered areas ..., where particularly severe climatic conditions and the presence of ice covering ... create obstructions or exceptional hazards to navigation";
- the laws are to be "based on the best available scientific evidence"; and
- the laws "shall have due regard to navigation."

Article 234 and NORDREG⁴⁴

In August 2008, Canada announced that it intended to make it mandatory for most non-government vessels entering into Canada's shipping safety control zones in the Arctic area, which include all the waters covered by the Arctic Waters legislation out to two hundred nautical miles, to report and receive clearance from Canadian authorities.⁴⁵ Canada had a voluntary system of ship reporting and vessel services covering Canada's Arctic waters, the Northern Canada Vessel Traffic Services Zone (NORDREG),⁴⁶ for which it was claimed that there existed a near 100 percent vessel compliance.⁴⁷ The regulations making vessel reporting in the Arctic mandatory were made available for comment in February 2010 and came into effect on 1 July 2010.⁴⁸

Section 126(1)(a) of the Canada Shipping Act⁴⁹ provides that mandatory reporting and obtaining of clearance is required for vessels to enter, leave, or proceed within a designated vessel traffic zone, and this includes the NORDREG zone. It is an offence for a vessel not to have reported and received clearance, punishable by a fine, imprisonment, and the detainment of the vessel.⁵⁰ The detailed information to be provided, the procedures and practices to be followed by a vessel about to enter or leave a traffic zone, and the conditions under which a clearance to enter, leave, or proceed is to be granted are set out by regulation.⁵¹

The friction between Canada and the United States centred on whether the compulsory NORDREG system was a law that was within the scope of Article 234. This played out through diplomatic correspondence and submissions made to and discussions within the IMO.

Canada asserted that Article 234 provided "a complete legal justification in international law for NORDREG."⁵² This marked the first time that Canada had directly relied upon Article 234 to support a new initiative in Canada's Arctic waters. Canada pointed out that both the International Safety of Life at Sea Convention (SOLAS), Chapter V, Regulation 11, which deals with ship reporting systems, and Chapter V, Regulation 12, which deals with vessel traffic services, have the identical paragraph:

Nothing in this regulation ... shall prejudice the rights and duties of Governments under international law ...⁵³

Canada's view was that its rights under Article 234 of LOSC take precedence over the relevant provisions of these SOLAS regulations and that nothing in the SOLAS Chapter V regulations "prejudice" Canada's rights under Article 234.⁵⁴ The result being, according to Canada, that the NORDREG system is exempt from SOLAS Chapter V, Regulations 11 and

12, and that Canada is under no obligation to submit the compulsory NORDREG system to the IMO.

At the 56th meeting of the IMO Sub-Committee on Safety and Navigation in the summer of 2010, the United States is reported to have said:

The United States did not believe that the new Canadian northern zone regulations were consistent with key law of the sea principles related to freedom of navigation, including the right of innocent passage and the right of transit passage through straits used for navigation.⁵⁵

The United States' submission (with the International Association of Independent Tanker Owners, or INTERTANKO) to the 88th meeting of the IMO Maritime Safety Committee (MSC) held in November/December 2010 is premised on the position that the NORDREG legislation was not within the scope of Article 234. The United States indicated that SOLAS Chapter V, Regulations 11 and 12, provide that ship reporting and traffic services can only be compulsory within the territorial sea of a state and that the NORDREG regime, which applies beyond Canada's territorial sea, appears to be inconsistent with these provisions.⁵⁶ More generally, the United States noted that as regards waters beyond the territorial sea and within an international strait, vessel traffic services (including reporting) can only be made mandatory through approval under SOLAS, Chapter V, Regulations 11 or 12.⁵⁷ As the compulsory NORDREG ship reporting system had not been submitted to the IMO, it was the United States' view that Canada has not acted consistently with SOLAS, Chapter V, Regulations 11 and 12.⁵⁸

The detail of the U.S. concerns about the applicability of Article 234 was not addressed in its submission to the IMO but was set out in 2010 diplomatic correspondence to Canada. The principal assertion of the United States was that, as the Canadian law "required" permission of foreign vessels to enter Canada's exclusive economic zone and that enforcement action including prosecution could be taken for not obtaining this permission, Canada's NORDREG law "is not consistent with navigational rights and freedoms ... which are the bedrock principles of the law of the sea."⁵⁹ While acknowledging the authority of a coastal state to enact and enforce certain measures pursuant to Article 234, the United States noted that such laws are to have "due regard to navigation" and that "[t]he United States does not believe that requiring permission to transit ... meets the conditions set forth in Article 234 of having due regard to navigation."⁶⁰

Other concerns raised by the United States dealt with NORDREG being discriminatory in exempting certain vessels when chartered to Canadian Forces and not similarly situated foreign vessels, and the lack of an apparent exemption from both application and prosecution for all sovereign immune vessels.⁶¹ The 2010 United States Letter to Transport Canada also referred to the limitation of Article 234 to “ice-covered areas” and inquired about “what information has been used to determine how this condition has been met throughout the entire area covered by the NORDREG Zone.”⁶² The letter also noted that laws enacted pursuant to Article 234 had to be based on the “best available scientific evidence” and inquired about the scientific evidence that had been considered in the development of the regulations.⁶³ These points were partly addressed in Canada’s 2010 submission to the MSC, which provided an explanation of the link between the mandatory NORDREG system and the “prevention, reduction and control of marine pollution from vessels in ice-covered areas ..., where particularly severe climatic conditions and the presence of ice covering ... create obstructions or exceptional hazards to navigation,” stating that “[t]he probability of an incident and the associated risk of environmental damage increases with traffic.”⁶⁴

The Canadian position that the NORDREG legislation is supported by the wording of Article 234 is premised on the value for environmental protection, whereas the United States contends that “due regard for navigation” acts as a constraint on what measure can be adopted consistent with Article 234 and that the NORDREG law did not have “due regard for navigation.”

Article 234 and MARPOL

While the NORDREG situation was the first time that Canada had directly relied upon Article 234 to support new legislation, it was not the first time since 1970 that Canada had asserted its rights under Article 234. This occurred in 1992, when Canada became a party to the Protocol of 1978 relating to the 1973 International Convention for the Prevention of Pollution from Ships (MARPOL 1973/1978).⁶⁵ At that time, Canada made two declarations involving Article 234. The first declared that:

Canada considers it has the right in accordance with international law to adopt and enforce special non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered waters where particularly severe climatic conditions ... create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause harm to or irreversible disturbance of the ecological balance.⁶⁶

As explained by two authors, “[b]ecause Canada’s declarations did not follow completely the wording of article 234, ... the United States filed ... its understanding of the permissible scope of Canada’s declarations.”⁶⁷

The United States stated that “Canada may enact and enforce only those laws ... in respect of foreign shipping in the arctic waters ... that have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.”⁶⁸

The above interaction of Canada focusing upon the conditions giving rise to a right of action and the United States focusing on the limitations on the right was what was repeated in the NORDREG situation.

Canada’s second declaration indicated that becoming a party to MARPOL 1973/1978 “is without prejudice to such Canadian laws and regulations as are now or may in the future be established in respect of arctic waters within or adjacent to Canada.”⁶⁹ The purpose of this declaration, when read together with the first declaration, is the assertion that Canada’s Article 234 rights under LOSC take precedence over the rights and obligations in the MARPOL Convention.

The Future

For some, setting out the international legal disputes in the Arctic Ocean between Canada and the United States creates a feeling of foreboding and menace about the future. The long-standing nature of many of the legal differences suggests simmering, waiting for a boiling point brought about perhaps by the increased interest and activity in the Arctic Ocean. Instinctively, commentators and observers suggest various solutions and methods for resolution.

The ocean law disputes discussed above are of different types:

- a maritime boundary dispute;
- a dispute respecting the international legal status of waters; and
- a dispute involving interpretation of a specific provision in a treaty.

Treaty interpretation and maritime boundary disputes are not unusual in international legal relations. Canada and the United States have long had maritime boundary disputes on every coast.⁷⁰ The resolution options for these disputes (for example, negotiation, adjudication) are well known to both states and can be used if and when the two states decide the time is right. The status-of-waters dispute is less common as a category, but the legal questions involve the existence and application of specific customary international law (historic waters) and the interaction of customary international law with treaty law. For this dispute, neither state has a strong incentive to push the dispute to a yes/no outcome.⁷¹

Thus, the recent past and future are seamless – the Canada-United States ocean law relationship in the Arctic is primarily one of calm, cooperation “on the water,” and mutual respect for one another’s national interests despite the legal disputes. The two sides will continue to rely upon their long history beyond the Arctic of managing and massaging legal and non-legal disputes.

Notes

¹ Ilulissat Declaration, 28 May 2008, reprinted at (2009) 48 ILM 362.

² United Nations Convention on the Law of the Sea, opened for signature 10 December 1982, 1833 UNTS 397 [hereinafter LOSC]. The “law of the sea” wording in the Ilulissat Declaration was utilized rather than LOSC since the United States is not a party to LOSC.

³ Antarctic Treaty, opened for signature 1 December 1959, 402 UNTS 71.

⁴ Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, 12 May 2011, reprinted at (2011) 51 ILM 1119.

⁵ For recent reviews of the Arctic Council of direct relevance to this contribution, see E.J. Molenaar, ‘Current and Prospective Roles of the Arctic Council within the Context of the Law of the Sea’ (2012) 27 *International Journal of Marine and Coastal Law* 553-95 and David L. VanderZwaag, ‘The Arctic Council at 15 Years: Edging Forward in a Sea of Governance Challenges’ (2011) 54 *German Yearbook of International Law* 281-314.

⁶ Ivan L. Head and Pierre E. Trudeau, *The Canadian Way: Shaping Canada’s Foreign Policy 1968–1984* (1995) 28.

⁷ Arctic Waters Pollution Prevention Act, Statutes of Canada 1969–1970, c. 47 (Can).

⁸ L.H.J. Legault, ‘Maritime Claims’ in Ronald St. J. Macdonald, Gerald L. Morris, and Douglas M. Johnston (eds.) *Canadian Perspectives on International Law and Organization* (1974) 385.

⁹ Canada, Department of External Affairs, ‘Letter’, 17 December 1973, reprinted in (1974) 12 *Canadian Yearbook of International Law* 279.

¹⁰ United States, ‘Commentary – The 1982 United Nations Convention on the Law of the Sea and the Agreement on Implementation of Part XI’, attached to Message from the President of the United States transmitting the United Nations Convention on the Law of the Sea, with Annexes, Montego Bay, 10 December 1982, and the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, United States Senate Treaty Document 39, 103rd Congress, 2nd Session IV (1994) 18-19 and reprinted in (1995) 34 ILM 1393. For a review of the legal posture of the United States on the Northwest Passage in the 1970s, see T.L. McDorman, *Salt Water Neighbors: International Ocean Law Relations between the United States and Canada* (2009) 241-42.

¹¹ Parts of this section have been drawn from, with modification, McDorman, *ibid.*, 163-66 and T.L. McDorman, ‘Canada–United States Bilateral Ocean Law Relations in the Arctic’ (2009) 15 *Southwestern Journal of International Law* 283, 292-95.

¹² Convention between Great Britain and Russia Concerning the Limits of their Respective Possessions on the North-West Coast of America and the Navigation of the Pacific Ocean, St. Petersburg, 16 February 1825, 75 *Consolidated Treaty Series* 95-101.

-
- ¹³ Convention ceding Alaska between Russia and the United States, Washington, 30 March 1867, entered into force 20 June 1867, 134 *Consolidated Treaty Series* 331, Art. I.
- ¹⁴ Great Britain and Russia 1825 Convention, above n 12, Art. III. See Canada, 'Diplomatic Note No. 626', 22 December 1976, in *Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States)* (Pleadings, Oral Arguments, Documents), Vol. 1, Annex 46 to Memorial of Canada, 430-32.
- ¹⁵ Mark B. Feldman and David Colson, 'The Maritime Boundaries of the United States' (1981) 75 *American Journal of International Law* 729, 750.
- ¹⁶ Department of State, 'Maritime Boundaries between the United States and Canada', Public Notice 506, 4 November 1976, 41 *Fed. Reg.* 48619-20 (1976) 15 ILM 1435-36, superseded by Department of State, 'Exclusive Economic Zone and Maritime Boundaries', Public Notice 2237, 23 August 1995, 60 *Fed. Reg.* 43825-29.
- ¹⁷ David H. Gray, 'Canada's Unresolved Maritime Boundaries' (1994) 48 No. 2 *Geomatica* 131, 135. This paper is reprinted in (1997) Vol. 5 No. 3. *Boundary and Security Bulletin* (University of Durham, International Boundaries Research Unit) 60-69.
- ¹⁸ 'Canada, U.S. to Team Up on Arctic Seabed Mapping Project', CBC News, 30 June 2008, <www.cbc.ca/technology/story/2008/06/30/cda-mapping.html> accessed 4 August 2008. See generally United States State Department document dealing with "recent information on data collection and analysis" respecting the continental shelf, excerpted in J. Ashley Roach and Robert W. Smith, *Excessive Maritime Claims* (3rd edn, 2012) 189-90 and further at 470-71.
- ¹⁹ See generally James S. Baker and Michael Byers, 'Crossed Lines: The Curious Case of the Beaufort Sea Maritime Boundary Dispute' (2012) 43 *Ocean Development and International Law* 70-95.
- ²⁰ For example, Randy Boswell, 'Beaufort Sea Breakthrough: Canada Open to Negotiating with U.S. Over Rights to Oil-Rich Seabed', *Vancouver Sun*, 18 February 2010.
- ²¹ Canada, *Proceedings of the Standing Senate Committee on National Security and Defence*, Issue 8, 1 November 2010, <www.parl.gc.ca/Content/SEN/Committee/403/defe/08evb-e.htm?Language=E&Parl=40&Ses=3&comm_id=76> accessed 11 July 2013.
- ²² Parts of this section have been drawn, with modification, from McDorman, above n 10, 225-45; McDorman, 'Canada-United States', above n 11, 285-87; and T.L. McDorman, 'The Northwest Passage: International Law, Politics and Cooperation' in Myron H. Nordquist, John Norton Moore, and Tomas H. Heidar (eds.), *Changes in the Arctic Environment and the Law of the Sea* (2010) 227-50.
- ²³ See Department of External Affairs, above n 9.
- ²⁴ Territorial Sea Geographical Coordinates (Area 7) Order, *Canada Gazette Part II*, Vol. 119, SOR/85-872, 10 September 1985, 3996-4002. In announcing the baselines, Minister for Foreign Affairs Joe Clark stated that "these baselines define the outer limit of Canada's historical internal waters." Joe Clark, Minister for Foreign Affairs, Canada, House of Commons, *Debates*, 10 September 1985, 6463. Subsequent government statements have followed this position. See Canada, Department of Foreign Affairs, 'Briefing', 21 May 1987 (1987) 25 *Canadian Yearbook of International Law* 406.
- ²⁵ See Roach and Smith, above n 18, 111, who state: "During bilateral discussions in Washington, D.C., on January 10, 1986, the United States stated that the Canadian straight baseline claim in the Arctic region is not based upon principles of international law and that Canada is not justified in stating that all the waters between Canadian islands in the Arctic are internal Canadian waters."
- ²⁶ See above n 10.

-
- ²⁷ Embassy of the United States, 'Diplomatic Note' No. 625, 18 August 2010, para 9, referred to in United States, *Digest of United States Practice in International Law – 2010* (2010), 518, <www.state.gov/s/l/c8183.htm> accessed 11 July 2013.
- ²⁸ Agreement between Canada and the United States on Arctic Cooperation, done at Ottawa, 11 January 1988, *Canada Treaty Series* 1988/29 and *T.I.A.S.* 1565.
- ²⁹ See McDorman, above n 10, 248-51 and McDorman, 'Canada–United States', above n 11, 287-88.
- ³⁰ For an interesting new paper on this, see Suzanne Lalonde and Frédéric Lasserre, 'The Position of the United States on the Northwest Passage: Is the Fear of Creating a Precedent Warranted?' (2013) 44 *Ocean Development and International Law* 28.
- ³¹ See generally McDorman, above n 10, 73-74 and 80.
- ³² Parts of this section have been drawn, with modification, from McDorman, 'Canada–United States', above n 11, 288-91.
- ³³ Report of an unidentified Canadian international lawyer in Douglas M. Johnston (ed.) *Arctic Ocean Issues in the 1980's* (1982) 12.
- ³⁴ U. Jenisch, 'The Arctic Ocean and the New Law of the Sea' in B. Vukas (ed.) *Essays on the New Law of the Sea* (1985) 479, 484.
- ³⁵ Donald M. McRae, 'The Negotiation of Article 234' in Franklyn Griffiths (ed.) *Politics of the Northwest Passage* (1987) 104.
- ³⁶ *Ibid.*, 114.
- ³⁷ S. Rosenne and A. Yankov (eds.), *United Nations Convention on the Law of the Sea 1982: A Commentary, Volume IV* (1991) 393. For a detailed review and analysis of the negotiation of Article 234, see McRae, above n 35, 98-114 and Kristin Bartenstein, 'The "Arctic Exception" in the Law of the Sea Convention: A Contribution to Safer Navigation in the Northwest Passage?' (2011) 42 *Ocean Development and International Law* 22, 23-27.
- ³⁸ Brian Hoyle, 'The United States Government Perspective' in Lawrence Juda (ed.) *The United States Without the Law of the Sea Treaty: Opportunities and Costs* (1983) 135.
- ³⁹ 'Commentary', above n 10, 40.
- ⁴⁰ McRae, above n 35, 110, who derives part of the argument from Donat Pharand, *Northwest Passage: Arctic Straits* (1984), 119-20, explains: "The ice-covered waters provision [Article 234] is not included in the sections of ... the Convention [on marine environmental pollution] that are subject to the international straits regime [as per Article 233]. Since the ice-covered waters provision clearly applies to the Northwest Passage, and since the ice-covered areas provision is not subject to the international straits regime, ergo the international straits regime is not applicable to the Northwest Passage."
- ⁴¹ Don McRae, 'Arctic Sovereignty? What is at Stake?' (2007) 64(1) *Behind the Headlines*, 18 and more generally, 17-19.
- ⁴² United States Department of State, 'United States Responses to Excessive Maritime Claims', *Limits in the Seas*, No. 112 (1992) 73, footnote 114.
- ⁴³ See McRae, above n 35, 108-09 and Bartenstein, above n 37, 36-37. Bartenstein comments at 37: "The absence of an international review process is one of the few certitudes in Article 234."
- ⁴⁴ Parts of this section have been drawn, with modification, from T.L. McDorman, 'National Measures for the Safety of Navigation in Arctic Waters: NORDREG, Article 234 and Canada' in Myron H. Nordquist, John Norton Moore, A.H.A. Soons, and Hak-So Kim (eds.) *The Law of the Sea Convention: US Accession and Globalization* (2012) 409-24.

-
- ⁴⁵ Canada, 'PM Announces Government of Canada Will Extend Jurisdiction over Arctic Waters', 27 August 2008, Press Release from Prime Minister of Canada, <pm.gc.ca/eng/media.asp?id=2248> accessed 23 January 2011 and Prime Minister of Canada, 'Backgrounder – Extending the Jurisdiction of Canadian Environment and Shipping Laws in the Arctic', 27 August 2008, <pm.gc.ca/eng/media.asp?id=2246> accessed 23 January 2011.
- ⁴⁶ Since 1977, Canada has had a voluntary ship reporting system in place for Canada's Arctic waters up to one hundred nautical miles. See Northern Canada Vessel Traffic Services Zone Regulations, *Canada Gazette Part II*, Vol. 144, No. 13, 23 June 2010, 'Regulatory Impact Analysis Statement' and Transport Canada, *User Assistance Package for the Implementation of Arctic Ice Regime Shipping System – AIRSS* (TP 12819 E, 1998), section 4.
- ⁴⁷ As reported in Canada, 'Rising to the Arctic Challenge: Report on the Canadian Coast Guard', Report of the Standing Senate Committee on Fisheries and Oceans (40th Parliament, 2nd Session, 2009) at 58, citing directly statements from Transport Canada officials.
- ⁴⁸ Northern Canada Vessel Traffic Services Zone Regulations, above n 46 and Order Amending the Shipping Safety Control Zones Order, *Canada Gazette Part II*, Vol. 144, No. 13, 23 June 2010.
- ⁴⁹ Canada Shipping Act, *Statutes of Canada 2001*, ch. 26 (as amended) (Can).
- ⁵⁰ *Ibid.*, section 138(1), (2), and (4).
- ⁵¹ *Ibid.*, section 136(1), (b), and (c).
- ⁵² Canada, 'Comments on Document MSC 88/11/2', IMO Doc. MSC/88/ 11/3, 5 October 2010, para 5.
- ⁵³ International Convention for the Safety of Life at Sea (SOLAS), opened for signature 1 November 1974, entered into force 25 May 1980, 1184 UNTS 2, Chapter V, Regulation 11.9 and Regulation 12.5.
- ⁵⁴ Canada, 'Comments', above n 52, para 5. On this point, see Roach and Smith, above n 18, 494-95.
- ⁵⁵ IMO, Sub-Committee on Safety of Navigation, 'Report to the Maritime Safety Committee', IMO Doc. NAV/56/20, 31 August 2010 (Report of the 56th session of the Sub-Committee), para 19.21.
- ⁵⁶ United States and INTERTANKO, 'Northern Canada Vessel Traffic Services Zone Regulations', IMO Doc. MSC/88/11/2, 22 September 2010, para 4.
- ⁵⁷ *Ibid.*, para 5.
- ⁵⁸ *Ibid.*, paras 3 and 10.
- ⁵⁹ United States Diplomatic Note, above n 27, para 4 and United States Embassy, 'Letter to Canadian Department of Transport', 19 March 2010, para 4, in *Digest of United States Practice, 2010*, above n 29, 515-18.
- ⁶⁰ United States Diplomatic Note, *ibid.*, para 5 and United States Letter to Transport Canada, *ibid.*, para 4.
- ⁶¹ United States Diplomatic Note, *ibid.*, para 6 and United States Letter to Transport Canada, *ibid.*, paras 5 and 6.
- ⁶² United States Letter to Transport Canada, *ibid.*, para 7.
- ⁶³ *Ibid.*
- ⁶⁴ Canada, 'Comments', above n 52, para 2.
- ⁶⁵ International Convention for the Prevention of Pollution from Ships (MARPOL), opened for signature 15 January 1974, and the Protocol of Amendment, opened for signature 1 June 1978, 1340 UNTS 61.

⁶⁶ Canada, Declarations at the Time of Accession, 16 November 1992, in IMO, *Status of Multilateral Conventions and Instruments in Respect of Which the International Maritime Organization or its Secretary-General Performs Depositary or Other Functions, as of September 2012* (London) 121 and reproduced in Roach and Smith, above n 18, 491.

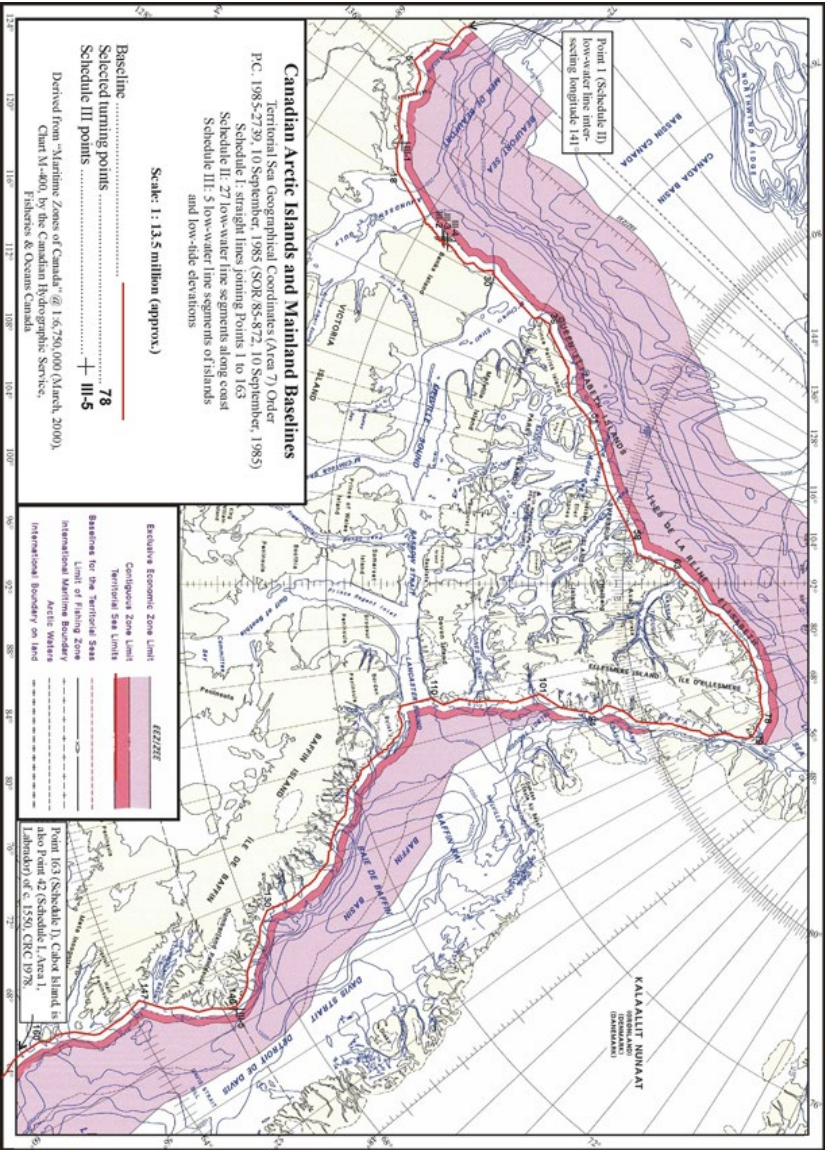
⁶⁷ Roach and Smith, above n 18, 491.

⁶⁸ United States, 'Communication to the Secretary-General of the IMO', 18 November 1993, in IMO, *Status of Conventions*, above n 66, 121 and reproduced in Roach and Smith, above n 18, 491.

⁶⁹ Canada, Declarations, above n 66.

⁷⁰ See generally McDorman, above n 10, 163-81.

⁷¹ See McDorman, above n 22, 246-49.



12

The Position of the United States on the Northwest Passage: Is the Fear of Creating a Precedent Warranted?

Suzanne Lalonde and Frédéric Lasserre*

Much has been written in recent years about existing and potential disputes in the Arctic, and Canada has featured prominently in such reports. Canada is involved in maritime boundary disputes with the United States (Beaufort Sea) and Denmark/Greenland (Lincoln Sea) and has an extended continental shelf area beyond two hundred nautical miles that will likely overlap with the U.S., Danish, and, possibly, Russian extended shelf areas. All of these disputes have been managed well to date and eventually will be resolved in accordance with established rules and procedures.

Recent media attention has also focused on international opposition to Canada's sovereignty over the Northwest Passage (see Figure 1). However, much like the dispute over the boundary line in the Beaufort Sea, the debate over the Northwest Passage is not new. For decades, Canada and the United States have been agreeing to disagree on the question. However, as with the other Arctic files, what is new is the realization that the Northwest Passage can no longer be viewed as a sterile, arcane, or academic debate; climate change has transformed the issue into one of immediate and pressing concern for Canada and other stakeholders. Indeed, increased access to the region, thanks to a dramatic loss of sea ice, has given the parties involved an impetus to find solutions to all of the various existing disputes, including the Northwest Passage.

* Originally published in *Ocean Development & International Law* 44, no. 1 (2013): 28-72.

The quarrel over the legal status of the Northwest Passage stands in some contrast to the other Arctic disputes involving Canada because of the wide array of interested parties. However, though Canadian Arctic governance measures have in the past been the object of protests by other states,¹ and recent European Union (EU) policy documents have emphasized freedom of navigation in the Arctic routes,² only the United States has publicly asserted that the Northwest Passage is a strait used for international navigation. While Canada and the United States have found pragmatic and effective ways to overcome their differences of opinion on the status of the Northwest Passage, there is no doubt that the United States has been the most vocal and persistent objector to Canada's sovereignty claim. It is in light of this role as principal opponent that this article will focus on U.S. policy and practice.

Canada's and the United States' respective positions regarding the Northwest Passage are well established. Successive Canadian governments have declared that all of the waters within Canada's Arctic archipelago are Canadian historic internal waters over which Canada exercises full sovereignty. This claim necessarily includes the right to govern and control access to the various routes that make up the Northwest Passage.³ For its part, the United States has consistently maintained that the Northwest Passage is an international strait through which the ships and aircraft of all nations enjoy a right of transit passage.⁴

A number of reasons explain the long-standing stalemate over the Northwest Passage: decades of public pronouncements reiterating the official Canadian and U.S. positions have severely limited the two governments' political *marge de manoeuvre*. Ambiguities in the legal regime, including the very definition of an international strait, have also allowed both states to craft solid, reasonable, and persuasive arguments. But, perhaps most importantly, one argument has been consistently raised on the U.S. side that has precluded any attempts to end the deadlock – to recognize Canada's historic waters claim over the Northwest Passage, or indeed to accept any compromise solution that does not characterize the waters as an international strait,⁵ would set a dangerous precedent that could then be invoked by other coastal states to claim a similar coveted status for a local strait.

James Kraska of the U.S. Naval War College, for example, stressed the legitimate concern of maritime powers over the negative impact for the freedom of the seas principle that would result from the recognition of Canadian sovereignty over the Northwest Passage.⁶ Even the possibility that Canada and the United States might find a working agreement that recognizes Canadian control over the passage has been decried by Kraska,

who argued that “a special deal between the United States and Canada provides a precedent for other coastal states to develop a bilateral treaty for controlling traffic in any of the numerous strategic international straits around the world, such as Iran and Oman cooperating to control the Strait of Hormuz.”⁷ Elizabeth Elliot-Meisel also highlighted the United States’ fear of “a negative precedent if it recognizes Canada’s sovereignty over the Passage.”⁸ As early as 1986, Bruce McKinnon was doubtful that the United States could ever be persuaded to accept Canada’s claim: “I think the US government probably feels that it simply cannot afford, at least publicly, to give way on any one of these disputes involving a strait. It would set a bad precedent for all its other disputes.”⁹ Nicholas Howson underlined that similar concerns exist at the U.S. State Department, focused particularly on the straits of Malacca, Hormuz, and the Philippine archipelago straits.¹⁰ According to David Larson, archipelagic states in Asia, such as Indonesia and the Philippines, could use the Northwest Passage as a pretext to unilaterally restrict the freedom of the seas in strategically sensitive areas.¹¹ Luke Petersen also insisted that “there are several straits and waterways that have similar characteristics to the Northwest Passage [... ;] Australia’s Torres Strait, the Strait of Malacca, and Iran’s claims regarding the Strait of Hormuz all may be affected by a determination (no matter what that determination is) as to the status of the Northwest Passage.”¹²

Other experts have been more moderate when analyzing the value of any potential precedent set by the settlement of the Northwest Passage issue in favour of Canada. S.J. Birchall considered that such a precedent would be relevant only for disputes involving an archipelago.¹³ Quoting Rebecca Dube’s theory in an April 2006 *USA Today* article that the Northwest Passage might set a precedent for Malacca or Hormuz,¹⁴ C.M. Macneill observed that the “International Court of Justice’s decision in the Norwegian Fisheries Case establishing straight baselines along the outer shores of the Norwegian Fjords would refute this theory.”¹⁵

The U.S. government has clearly expressed its fear on several occasions spanning more than four decades that recognizing Canada’s sovereignty over the Northwest Passage “would be taken as precedent in other parts of the world.”¹⁶ Ted McDorman referred to a note from the U.S. **secretary of state** dated 14 April 1970 explaining the views of the United States: “If Canada had the right to claim and exercise exclusive pollution and resources jurisdiction on the high seas, other countries could assert the right to exercise jurisdiction for other purposes, some reasonable and some frivolous, but all equally invalid according to international law.”¹⁷ In 1985, the U.S. ambassador to Canada, Thomas Niles, in responding to

Canadian initiatives adopted following the passage of *Polar Sea*, noted that “one of the serious concerns that the United States had with Canadian action regarding the Arctic waters was that it might have a precedent value for other states arguing in favor of increased jurisdiction over waters and passing vessels.”¹⁸ McDorman commented that one of the most high-profile communications by the United States on the importance of precedent in regard to the Northwest Passage came from President Ronald Reagan in 1987. In a private letter to Prime Minister Brian Mulroney, included in the latter’s memoirs, Reagan stated, “I have to say in all candor that we cannot agree to an arrangement that obliges us to seek permission for our vessels to navigate through the Northwest Passage. To do so would adversely affect our legitimate right to freely transit other important areas globally.”¹⁹ More recently, the U.S. Navy’s 2010 report entitled *Strategic Objectives for the U.S. Navy in the Arctic Region* explicitly provided that “[w]e cannot view the Arctic in isolation; the application of international law in the Arctic establishes precedent germane to all the world’s oceans, straits, and sea lanes.”²⁰ Garrett Brass, the executive director of the U.S. Arctic Research Commission, has been quoted as reporting that U.S. officials worry about what sort of precedent the Northwest Passage could set for international straits in global hot spots such as the Strait of Hormuz and the Strait of Malacca: “We don’t want people closing the Strait of Gibraltar.”²¹

This article will attempt to establish whether U.S. concerns over the potential creation of a negative precedent are warranted. Is the Northwest Passage in fact similar to those other oft-mentioned strategic straits? Could coastal states rely on an eventual recognition of Canadian sovereignty over the Northwest Passage to bolster their claims over specific straits? And, if the fear of creating a precedent is warranted, has the United States reacted in a consistent manner in response to other claims over straits around the world? Has Canada borne the brunt of U.S. fears over encroaching coastal state jurisdiction, or have other states bordering international straits also been the object of U.S. protests?

In addressing this key argument in the Northwest Passage debate, it of course will not be possible to consider every international strait connecting the world’s oceans. Not only are they too numerous, but the very concept of what constitutes an international strait is the subject of differing and often conflicting interpretations. While L.M. Alexander identified 265 straits used internationally for navigation,²² R.W. Smith considered that there are 220 such straits.²³ Another figure given is 136,²⁴ and Larson considered that there are 134 international straits.²⁵ These significant variations in estimates underline the importance of

subjective factors in the determination of what constitutes an international strait.

An Overview of the International Legal Rules

To assess the “precedent argument” as a justification for refusing to entertain the notion of Canadian sovereignty over the Northwest Passage, a number of key legal concepts must be outlined.

The world’s oceans are today subject to a generally accepted body of rules that seek to establish what is often an uneasy compromise between coastal states’ rights and the fundamental principle of freedom of navigation. This tension underlies many of the key sections of the 1982 United Nations Law of the Sea Convention (LOS Convention)²⁶ and the international customary rules governing the shared use of the maritime domain.

As a result of the compartmentalization of ocean spaces confirmed by the LOS Convention, the concept of baselines is of critical importance. Indeed, all of a coastal state’s maritime zones are defined by reference to its established baselines.²⁷ Article 5 of the Convention provides that the normal baseline is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal state. However, Article 7 provides that “[i]n localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baselines joining appropriate points may be employed in drawing the baseline....”

As P. Vincent explains, a coastal state’s powers and prerogatives diminish as the distance from shore increases.²⁸ For this reason, a state exercises the greatest degree of control over its internal waters, defined in Article 8(1) of the LOS Convention as “waters on the landward side of the baseline of the territorial sea....” While the Convention does not set out a detailed set of international rules governing internal waters, state sovereignty is the key concept, as confirmed by Article 2(1) of the Convention²⁹ and by the International Court of Justice’s 1986 *Nicaragua* decision:

The basic concept of State sovereignty in customary international law, expressed in, inter alia, Article 2, paragraph 1 of the United Nations Charter, extends to the internal waters and territorial sea of every State and to the air space above its territory.³⁰

Recognized as an integral part of a state’s territory, international law thus provides that internal waters are subjected to the full force of the coastal state’s legislative, administrative, judicial, and executive powers. Foreign ships benefit from what has been termed as a presumptive right

of entry into the internal waters of a coastal state, but G. Gidel insisted that “the presumption is in favour of a right of access to ports; but [it is a] presumption and not [an] obligation.”³¹ This right to control foreign access to internal waters, which necessarily implies a right to deny access if national imperatives so dictate, is a source of concern for the international community, where a strait used for international navigation is included within a coastal state’s internal waters.

The drawing of straight baselines has been the primary mechanism through which international straits have been enclosed within a coastal state’s internal waters. Whereas Article 5 of the LOS Convention provides that the normal baseline, in the absence of specific geographical circumstances, should be “the low-water line along the coast,” many states have instead relied on the use of straight baselines as defined in Article 7. Yet, both the Convention and customary international law stipulate fairly restrictive circumstances in which the recourse to straight baselines can be justified,³² as well as strict conditions to be met in the actual drawing of baselines.³³ It is on the basis of these specific rules that the U.S. State Department has for some years decried the excessive resort to Article 7 and the drawing of allegedly illegal straight baselines by many states.³⁴

In the wake of the *Polar Sea* controversy in August 1985,³⁵ Canada acted to consolidate its legal position in regard to the Northwest Passage by drawing straight baselines connecting the outer headlands of its Arctic archipelago.³⁶ In making the announcement, then Minister of External Affairs Joe Clark took care to specify that “these baselines define the outer limit of Canada’s historic internal waters.”³⁷ If Canada’s straight baselines were drawn to identify the precise extent of Canadian historic internal waters in the Arctic, it has been argued that the baselines are not captured by the strict threshold and construction rules defined by the International Court of Justice in the *Norwegian Fisheries Case*³⁸ and later codified in both Article 4 of the 1958 Territorial Sea and Contiguous Zone Convention³⁹ and Article 7 of the LOS Convention.⁴⁰

Under international law, a country may validly claim title over waters on historic grounds if it can show that it has, for a considerable length of time, effectively exercised its exclusive authority over the maritime area in question. However, the legal status of the maritime areas regarded as historic waters will vary according to the nature of the sovereign acts exercised by the coastal state(s). This important aspect is underlined in the 1962 UN Secretariat Study on the Juridical Regime of Historic Waters: “These areas would be internal waters *or* territorial sea according to whether the sovereignty exercised over them in the course of

development of the historic title was sovereignty as over internal waters *or* sovereignty as over the territorial sea."⁴¹

Canada's claim that the Northwest Passage constitutes Canadian historic internal waters is based on, among other things, the fact that British explorers mapped the archipelago prior to the transfer of title in 1880⁴² and that the area was subsequently patrolled and policed by Canadians.⁴³ Canadian involvement in all of the Northwest Passage transits that have taken place to date can also be cited as evidence of Canada's authority over the waterway.⁴⁴

However, even if Canada can demonstrate that it has effectively exercised its exclusive authority over the waters of the Arctic archipelago for a considerable length of time, it must also satisfy the third required element: acquiescence.⁴⁵ Canada must show that, during this same period of time, its exercise of authority has been acquiesced in by other countries, especially those directly affected by it. Donat Pharand considered this to be a fatal flaw in Canada's historic waters argument because none of the early activity in the archipelago was ever coupled with an explicit claim to the straits and channels between the islands, and later explicit expressions of the claim have been consistently opposed by the United States.⁴⁶

If Canada cannot validly claim title to the waters of its Arctic archipelago on historic grounds, its baseline system will have to meet the relevant international legal rules. Furthermore, in such a scenario, Article 8(2) of the LOS Convention might well guarantee certain navigational rights. Adopted in the LOS Convention to prevent the use of baselines becoming an unacceptable infringement on the core value of freedom of navigation from Article 5(2) of the 1958 Territorial Sea Convention,⁴⁷ Article 8(2) provides that "[w]here the establishment of a straight baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters."

The concept of innocent passage is normally associated with the territorial sea, which can extend up to a maximum of twelve nautical miles from a state's baseline. While Article 2(1) of the LOS Convention declares that "[t]he sovereignty of a coastal State extends, beyond its land territory and internal waters ... to an adjacent belt of sea, described as the territorial sea," the interests of the international community are explicitly recognized by the inclusion of a specific set of rules governing the right of innocent passage of foreign ships through zones of territorial sea.

Articles 17 through 19 of the LOS Convention provide for the right of all ships to traverse the territorial waters of a coastal state provided such passage is continuous and expeditious⁴⁸ and is not prejudicial to the peace, good order, and security of the coastal state.⁴⁹ The second paragraph of Article 19 provides a list of activities that, if engaged in by ships while traversing territorial waters, will be considered to be prejudicial to the coastal state.⁵⁰ Article 20 further provides that “[i]n the territorial sea, submarines and other underwater vehicles are required to navigate on the surface and to show their flag.”

Articles 21 through 26 of the Convention detail the rights and obligations of the coastal states and of foreign ships in regard to innocent passage through the territorial sea. The first paragraph of Article 21 provides a fairly broad list of subjects for which the coastal state can adopt laws and regulations; for example, the safety of navigation and the preservation of the marine environment. The second paragraph, however, warns that such laws and regulations cannot apply to the design and construction, manning, or equipment of foreign ships unless they give effect to generally accepted international rules or standards. Paragraph 4 of Article 21 exhorts foreign ships exercising the right of innocent passage to comply with all such laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.

While Article 24 of the LOS Convention reminds the coastal state that it must not hamper the innocent passage of foreign ships through its territorial sea, Article 25 clearly states that “[t]he coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent.” Paragraph 3 of Article 25 further provides that the coastal state may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security, including weapons exercises. Such suspension is to take effect only after having been published.

A coastal state’s sovereign control over its internal waters and the many rights and prerogatives recognized to it over the innocent passage of foreign ships in its territorial sea are in marked contrast to the regime of transit passage that applies within international straits. Indeed, the LOS Convention contains a separate section, Part III, dealing exclusively with the rules governing “Straits Used for International Navigation.”

While Part III reflects the consensus ultimately reached during the Third UN Law of the Sea Conference on the scope and nature of the legal regime applicable to international straits, no precise definition of what constitutes an “international strait” could be agreed on. Consequently, the

principal source of law on this issue remains the International Court's ruling in the 1949 *Corfu Channel Case*.⁵¹

In one of the key passages of its decision, the International Court identified the twin criteria that together define an international strait: "one pertaining to geography and the other to the function or use of the strait," to borrow Pharand's words.⁵² In answering the question of "whether the test is to be found in the volume of traffic passing through the Strait or in its greater or lesser importance for the international navigation," the Court stated that "the decisive criterion is rather its geographical situation as connecting two parts of the high seas and the fact of its being used for international navigation."⁵³

On the basis of the *Corfu Channel Case*, most commentators have agreed that both a geographical and a functional element must be satisfied for a body of water to qualify as an international strait. Indeed, the Court's deliberate use of the coordinative conjunction "and" gives equal weight to both criteria. The first criterion pertaining to geography has not been the subject of much discussion and was simply updated in Article 37 of the LOS Convention to reflect the creation of the exclusive economic zone: "This section applies to straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone."

It is the second, functional criterion that has fuelled debate among law of the sea specialists. Some commentators, primarily from the United States, have argued that so long as the body of water can potentially be used for international navigation, the Court's functional definition or test is satisfied.⁵⁴ Others, including Canada's foremost expert on the Northwest Passage (Pharand), have argued that before a strait can be defined as an international strait, it must be a "useful route for international maritime traffic,"⁵⁵ in that it must have a history of usage, as of right, by the ships of foreign nations.⁵⁶ Some support for this view, which insists on actual use, can be gathered from the various references to straits in Part III of the LOS Convention. Indeed, Part III is entitled "Straits Used for International Navigation" (emphasis added), and this reference is repeated in Articles 34, 36, and 37. Reference could also be made to the pleadings of the United Kingdom in the 1951 *Norwegian Fisheries Case*, where an international strait was defined as "any legal strait to which a special regime as regards navigation applies under international law because the strait is *substantially used* [emphasis added] by shipping proceeding from one part of the high seas to another."⁵⁷

However, while doubts may exist as to whether a particular body of water, like the Northwest Passage, meets the definition of an international

strait under international law, the legal regime that governs vessels within international straits is now firmly established. Most importantly, a separate and distinct navigational regime is defined by Part III of the LOS Convention, the right of transit passage, which differs in some key respects from the right of innocent passage through territorial waters.

Article 38 of the LOS Convention provides that all ships and aircraft enjoy the right of transit passage through international straits and that such a right “shall not be impeded.” Whereas the right of innocent passage through territorial waters applies only to ships, the right of transit passage extends to the air corridor above an international strait and can, therefore, also be exercised by aircraft. In its second paragraph, Article 38 clarifies that transit passage means the exercise of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

Article 39 details the duties of ships and aircraft during passage and provides that they must “refrain from any activities other than those incident to their *normal* [emphasis added] modes of continuous and expeditious transit...” As the normal mode of transit for submarines is underwater, Article 39(1)(c) confirms their right to transit international straits submerged, another key difference with the right of innocent passage in territorial waters.

Articles 41 and 42 of the LOS Convention specify the subjects relating to transit passage for which states bordering straits may adopt laws and regulations. Article 41 confers rights similar to those in regard to the territorial sea for the designation of sea lanes and traffic separation schemes, provided such measures conform to generally accepted international regulations. On the other hand, Article 42 provides a much more restricted list of general issues that may be regulated by coastal states within an international strait: the safety of navigation; the prevention, reduction, and control of pollution; the prevention of fishing activities; and the loading or unloading of any commodity, currency, or person.⁵⁸ Significantly, coastal states are only entitled to adopt laws for the prevention of pollution within a strait that give effect to existing international standards. Thus, Article 42, entitled “Laws and Regulations of States Bordering Straits Relating to Transit Passage,” more severely curtails the exercise of state prerogatives than its counterpart, Article 21, “Laws and Regulations of the Coastal State Relating to Innocent Passage” within territorial waters.

Of critical importance, the last article in the section on transit passage, Article 44, categorically states:

States bordering straits shall not hamper transit passage and shall give appropriate publicity to any danger to navigation or overflight within or over the strait of which they have knowledge. There shall be no suspension of transit passage.⁵⁹

Compared to the rules that govern internal or territorial waters, international law provides that a state bordering an international strait may exercise only limited powers over navigation within that strait.

Finally, it must be noted that particular categories of straits, as defined by the LOS Convention, are exempted from the right of transit passage or are governed by a distinct regime. For example, Article 35 provides that nothing in Part III of the Convention affects “the legal regime in straits in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits.” The Turkish straits – the Dardanelles and Bosphorus – for example, fall into this category, as they are governed by the specific regime defined in the 1936 Montreux Convention.⁶⁰

Article 36 provides that Part III “does not apply to a strait used for international navigation if there exists through the strait a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics...” This category necessarily applies only to straits that are more than 24 miles wide, like the Florida Strait or Strait of Havami between Cuba and the Florida Keys.⁶¹ As R.R. Churchill and A.V. Lowe explained, “[i]n ... these exceptional cases ... there exists freedom of navigation through the economic zone or high seas route, and the right of innocent passage through the bands of territorial seas which lie on either side of it.”⁶²

A third category of straits exempted from the regime of transit passage is defined by Article 38(1): “... [i]f the strait is formed by an island of a State bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the island a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics.” According to Churchill and Lowe, the Strait of Messina between Italy and Sicily and the Pemba Channel off Tanzania fall within this category.⁶³ Article 45(1)(a) of the LOS Convention stipulates that, in such cases, a nonsuspendable right of innocent passage applies between the island and the mainland.

Article 45(1)(b) defines a final category of straits in which the principal regime of transit passage as defined by Part III does not apply: straits used for international navigation between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign state. Churchill and

Lowe referred to the Straits of Tiran, those narrow sea passages between the Sinai and Arabian Peninsulas that separate the Gulf of Aqaba from the Red Sea, as an example of this type of strait.⁶⁴ As with straits formed by an island, Article 45(1)(b) provides that a nonsuspendable right of innocent passage will apply in straits that connect a part of the high seas or an exclusive economic zone with the territorial sea of a coastal state. It should be noted that, if the Northwest Passage ever came to be considered a strait used for international navigation, none of the special regimes defined by Part III of the LOS Convention would apply; rather, it would be subject to the general rules relating to transit passage.

A final set of rules must be outlined before considering the precedential value of the Northwest Passage for other straits around the world. While Part III of the LOS Convention deals specifically with the issue of straits used for international navigation, Part IV is devoted to archipelagic states. Article 46(1) defines an “archipelagic State” as a state constituted wholly by one or more archipelagos and that may include other islands. While the inclusion of a distinct archipelagic regime within the LOS Convention was promoted by such states as Indonesia, the Philippines, and Fiji, according to Churchill and Lowe, Article 46 would appear to include a number of states that are not normally considered as archipelagic states:

Secondly, the definition of an archipelagic State would appear to embrace a number of States who do not normally consider themselves to be archipelagic States, such as Japan, New Zealand and the United Kingdom. While it is not clear whether States have a choice as to whether they consider themselves as archipelagic States, they certainly do have an option as to whether they draw archipelagic baselines—and the capacity to draw such baselines appears to be the only consequence of a State being designated as an archipelagic State—since article 47 says “an archipelagic State may draw straight archipelagic baselines” (emphasis added). In any case most of these non-traditional archipelagic States will in practice be unable to draw archipelagic baselines because of the rules governing the drawing of such baselines....⁶⁵

The LOS Convention stipulates a number of fairly restrictive rules before a coastal state can draw straight baselines to define its archipelagic waters. Article 47(1) provides that “an archipelagic State may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago provided that within such baselines are included the main islands and an area in which

the ratio of the area of the water to the area of the land, including atolls, is between 1 to 1 and 9 to 1." States in which the total area of land exceeds that of water, like Cuba, Great Britain, Iceland, or New Zealand, cannot therefore meet this criterion and are therefore not entitled to draw archipelagic baselines.⁶⁶ Furthermore, Article 47(2) dictates that the length of individual baselines is not to exceed one hundred nautical miles, except that "up to 3 per cent of the total number of baselines enclosing any archipelago may exceed that length, up to a maximum length of 125 nautical miles."

Article 49(1) of the Convention stipulates that the sovereignty of an archipelagic state extends to the waters enclosed by the archipelagic baselines drawn in accordance with Article 47, regardless of their depth or distance from the coast. And Article 49(2) specifies that "this sovereignty extends to the air space over the archipelagic waters, as well as to their bed and subsoil, and the resources contained therein." However, this sovereignty is exercised subject to the right of archipelagic sea lanes passage conferred on the ships and aircraft of all states by Part IV of the LOS Convention.

Article 53(1) of the LOS Convention provides that an archipelagic state may designate sea lanes and air routes for the continuous, expeditious, and unobstructed passage of foreign ships and aircraft through or over its archipelagic waters and its adjacent territorial sea. Specific rules are then detailed in the following paragraphs of Article 53 governing the designation of such sea lanes and air routes:

Such sea lanes and air routes shall be defined by a series of continuous axis lines from the entry points of passage routes to the exit points. Ships and aircraft in archipelagic sea lanes passage shall not deviate more than 25 nautical miles to either side of such axis lines during passage, provided that such ships and aircraft shall not navigate closer to the coasts than 10 per cent of the distance between the nearest points on islands bordering the sea lane.⁶⁷

An archipelagic state may also prescribe traffic separation schemes for the safe passage of ships through narrow channels within its sea lanes.

The rights and duties of both coastal states and foreign ships and aircraft in regard to the right of archipelagic sea lanes passage mirror the regime defined by the LOS Convention for international straits and the right of transit passage. Indeed, Article 54 in Part IV, which bears the rather lengthy title of "Duties of Ships and Aircraft During Their Passage, Research and Survey Activities, Duties of the Archipelagic State and Laws and Regulations of the Archipelagic State Relating to Archipelagic Sea

Lanes Passage,” simply refers to the key provisions of the straits regime under Part III of the Convention: “Articles 39, 40, 42 and 44 apply *mutatis mutandis* to archipelagic sea lanes passage.” Much like the legal regime governing the right of transit passage through international straits, the right of archipelagic sea lanes passage allows for limited coastal state control over passing vessels and aircraft.

With these various legal regimes and specific rules in mind, it is now possible to better understand and evaluate other examples where coastal states have claimed a right to exercise some form of control over a strait bordering their territory. These situations will be analyzed to discover whether they could or might be influenced by any resolution of the Northwest Passage dispute in favour of Canadian sovereign control over navigation in its various routes. Of key interest throughout this analysis will be the U.S. responses – to what extent have its official pronouncements, reactions, and actions been consistent when confronted with what the United States considers to be an excessive maritime claim over an international strait?

Cases Where Straits Included Within the Internal Waters of the Coastal State Have Been the Subject of U.S. Protests

The Piombino Strait

The Italian government, by Presidential Decree No. 816 dated 26 April 1977, established straight baselines around the Tuscan Archipelago and also laid claim to the Gulf of Taranto on the basis of an historic title.⁶⁸ Doubts have been voiced as far back as 1977 regarding the legality of the Italian baselines that enclose the entire Tuscan Archipelago and, thus, encompass the Strait of Elba or Piombino.⁶⁹ The Italian claims are not recognized by the United States, and in 1986, nine years after they were first proclaimed, it lodged a formal and public protest with the Italian government.⁷⁰ In 2009, France also appears to have publicly challenged the Italian baselines after several years of tacit acquiescence.⁷¹ France and the United States insist that Italy must accept a right of transit passage through the strait or, at the very least, a right of innocent passage. In support of their position, the U.S. and French governments have invoked the fact that navigation through the strait, albeit of a mainly local character, was significant before the Italian baselines enclosed it, and this argument has also been espoused by some scholars (Figure 2).⁷²

The Northeast Passage

The Soviet Union began considering the waters around its Siberian archipelagos as Soviet internal waters as early as the 1940s.⁷³ In 1965, it formally declared that the basis for this claim was historic title.⁷⁴ The

United States challenged the claim by sending icebreakers each summer between 1962 and 1967, ostensibly to conduct oceanographic research in the contested waters, according to its official announcement.⁷⁵ There is little doubt, however, that the main goal of the missions was to signal the U.S. government's strong opposition to the Soviet claim.⁷⁶ The presence of U.S. Coast Guard vessels in what it considered to be its sovereign waters triggered protests from the Soviet Union, which also reacted by sending reconnaissance aircraft to monitor the movements of the U.S. ships.⁷⁷ In 1964, the icebreaker *Burton Island* attempted to transit the Dmitry Laptev Strait, but it gave up in the face of Soviet protests and intimidation by Soviet warships.⁷⁸ In 1965, USS *Northwind* similarly tried to cross the Vilkitsky Strait, but it also faced determined opposition from Soviet frigates.⁷⁹ Then, in 1967, the U.S. icebreakers *Edisto* and *Eastwind* notified the relevant Soviet authorities of their intention to sail north of the Severnaya Zemlya archipelago before transiting through the Bering Strait; they were, however, forced to turn back when confronted with strong Soviet military opposition.⁸⁰ Since the 1967 showdown, U.S. icebreakers have not attempted to utilize the Russian Arctic straits.⁸¹ However, the United States officially reiterated its protest against the Soviet claim in 1982, 1984, and 1986 (Figure 3).⁸²

The Japanese Straits

In June 1996, Japan adopted Law No. 77, which established straight baselines around most of the Japanese archipelago.⁸³ The Japanese government deliberately left four major straits outside its baseline system: La Pérouse/Soya Strait, the Osumi Strait, the Tsugaru Strait, and the eastern channel of Tsushima Strait. The western channel of Tsushima Strait, which separates Japan and South Korea, could not be enclosed and remained subject to the normal rules of delimitation. Furthermore, while in 1977 Japan extended its territorial sea to twelve nautical miles in keeping with evolving international norms, it specifically excepted from this general measure the four straits. Within these strategic waterways, the limits of Japan's territorial sea vary between three and twelve nautical miles.⁸⁴ By claiming a reduced territorial sea where the strait measured less than twenty-four nautical miles wide, Japan ensured that a high seas corridor would continue to exist. Some analysts have speculated that Japan was motivated by the desire to prevent submerged submarines from coming too close to the Japanese coastline.⁸⁵ As discussed above, Article 36 of the LOS Convention provides that the right of transit passage does not apply to a strait if there exists through the strait a high seas route. Therefore, foreign submarines cannot remain submerged when transiting through Japan's territorial waters within those straits.⁸⁶ Another source

explains that the Japanese measure enables nuclear-armed U.S. Navy ships and submarines to transit the strait without violating Japan's prohibition against nuclear weapons in its territory (Figure 4).⁸⁷

Japan's baselines encompass the straits between Honshu, Kyushu, and Shikoku Islands: Shimonoseki Strait, Hoyo Strait, and Bungo Channel. These particular baselines and Japanese control over the enclosed straits are not recognized by the United States. It officially protested against Japan's claim in 1998 and conducted an "operational challenge" in 1999.⁸⁸ According to the United States, these straits are international waters open to all, since they are used for international navigation.⁸⁹ On 16 March 1999, the Japanese government replied that its straight baselines were drawn in complete conformity with international law.⁹⁰

It is unclear to what extent Japan could invoke the Northwest Passage as a precedent to defend its sovereignty claim over the Shimonoseki, Hoyo, and Bungo Straits. Certainly, the United States appears to have reacted to the Japanese claim in much the same way as it has to Canada's claim over the Northwest Passage: It is adamant that the Japanese straits are "used for international navigation" through which all ships and aircraft must enjoy the right of transit passage. However, if the United States' policy of reacting to and denouncing coastal state claims to extended jurisdiction is based on its perceived interest in defending and promoting freedom of navigation, the Japanese claim does not present much of a threat. The international community's interest in free and direct access to major maritime routes has been preserved, since the five strategic straits remain fully accessible and ships can easily circumnavigate the Japanese mainland. The Japanese government not only exercised restraint in drawing its straight baselines, but it actually claims less than what current international legal rules afford it. The law of the sea, both the LOS Convention and international customary law, provides that a coastal state is entitled to exercise its sovereignty over a territorial sea measuring up to twelve nautical miles from its baselines. Japan has chosen not to exercise its sovereignty to the full extent provided by international norms and has acted in such a way so as to preserve the freedom of navigation of the high seas through those straits. As such, a resolution of the Northwest Passage dispute would in all likelihood have little impact on the rights of ships navigating in and around Japan.

The Qiongzhou Strait Between Hainan and China's Mainland

On 4 September 1958, the People's Republic of China issued a declaration that defined its territorial sea as a zone twelve nautical miles in width.⁹¹ The declaration also claimed Bohai Bay (the Gulf of Tonkin) and the Qiongzhou Strait, between Hainan Island and southern China, as

part of Chinese internal waters. More recently, the 1992 Law on the Territorial Sea declared that the method of straight baselines would be relied on to define the Chinese territorial sea.⁹² The follow-up legislative instrument, the Declaration on the Baseline of the Territorial Sea of 15 May 1996, published the coordinates of China's baselines drawn around the Chinese mainland, Hainan Island, as well as the disputed Xisha/Paracel Islands in the South China Sea.⁹³ The baseline system confirmed China's position, according to which the Qiongzhou Strait is entirely within Chinese internal waters (Figure 5).⁹⁴

It appears as if the United States anticipated that China would eventually use straight baselines to enclose the Qiongzhou Strait, going so far as to postulate in 1972 how such a baseline might be defined.⁹⁵ The United States maintains that several segments of China's baseline are inconsistent with international law⁹⁶ and that the Chinese measures do not terminate the right of transit through what the United States sees as an international strait.⁹⁷ This position has been formally rejected by China on the basis that foreign ships do not enjoy and never have had a "right of innocent passage" (*sic*) through the Qiongzhou Strait.⁹⁸ The reference to the right of innocent passage seems to indicate that China has never accepted that the straits regime applies to the Qiongzhou Strait, either because it feels it does not meet the definition of an international strait or because it believes that the exception defined in Article 38 of the LOS Convention applies in this case.⁹⁹ The United States formally protested China's initial claim in 1958 and again in 1996 – calling into question the legality of both the baseline system and the claim to internal waters status for the Qiongzhou Strait – and proceeded to conduct "operational assertions" in 1997.¹⁰⁰ However, according to Ji Guoxing, the Chinese claim reportedly has been effectively established, as the United States has been unable to prevent China from enforcing its regulations and legislation.¹⁰¹

The Palk Strait

The Palk Strait, situated between India and Sri Lanka, was recognized as forming part of the parties' historic waters by a bilateral treaty concluded on 28 June 1974.¹⁰² Sri Lanka subsequently formalized its claim to its part of the strait in January 1977, and India followed suit in June 1979.¹⁰³ The Palk Strait is included within India's and Sri Lanka's internal waters, though, in this particular case, it is on the basis of an historic title rather than the drawing of straight baselines.¹⁰⁴ The Indian and Sri Lankan claims are not recognized by the United States. It lodged a protest in 1986, several years after the claims were first formulated, and proceeded to

conduct operational assertions in 1993 and 1994 against India and in 1999 against Sri Lanka.¹⁰⁵

It should be noted that the Palk Strait is only five to nine metres deep, with many shallow reefs, and serves no strategic traffic but only local coastal trade. However, in July 2005, India took the first steps toward making the Sethusamudram Shipping Canal Project a reality. The project aims to dredge a deep channel within the Indian sector of the Palk Strait.¹⁰⁶ If the canal transforms the Palk Strait into a strategic maritime link between the Gulf of Mannar and the Bay of Bengal, India's position may come under considerable strain. Increased international navigation through the Palk Strait might lend support to the U.S. view that the Palk Strait meets the definition of an international strait and is subject to the right of transit passage defined in Part III of the LOS Convention. It also would undoubtedly increase the United States' resolve to defend the freedom of navigation through the strait and protest against any unilateral and sovereign assertion of control by India.

The Kerch Strait

The Kerch Strait enables ships to access the Sea of Azov from the Black Sea. In a 2003 joint statement, the Russian and Ukrainian governments formally declared that the Sea of Azov and the Kerch Strait were part of their historic internal waters.¹⁰⁷ According to U.S. documents, while the United States has protested Russia's internal waters claims in regard to other maritime zones "on numerous occasions," no such statement appears with respect to the Kerch Strait.¹⁰⁸ The Kerch Strait thus appears to qualify for what could be termed the "dead-end exception" in Part III of the LOS Convention. Indeed, as provided in Article 45(1)(a) of the Convention, a regime of nonsuspendable innocent passage rather than the right of transit passage applies in straits that begin in a part of the high seas or an exclusive economic zone but end up in the territorial sea of another state. However, the U.S. position on the appropriate navigational regime within the Kerch Strait is not clear. The U.S. Navy Commander's Handbook lists the Kerch Strait among those straits that connect the high seas or an exclusive economic zone with "claimed" historic waters, the qualifier seemingly implying that the Russian and Ukrainian claims are not accepted.¹⁰⁹ The strategic value of this strait for the United States is, however, minimal, since the Kerch Strait merely gives access to a small enclosed sea.

Head Harbour Passage

Head Harbour Passage within Passamaquoddy Bay, at the western entrance of the Bay of Fundy, is the principal navigation route to Eastport, Maine, and has been used by vessels to access the port of Bayside in New

Brunswick. At its narrowest, Head Harbour Passage is less than one nautical mile wide. It is approximately four nautical miles in length and “runs between the islands south of Deer Island and Campobello Island (both of which are Canadian) before reaching U.S. waters east of Eastport, Maine.”¹¹⁰ As McDorman explained, “[a]s a result of 1908 and 1910 maritime boundary agreements, there is no question that the waters of the Head Harbour Passage are Canadian as opposed to being waters under the jurisdiction of the United States.”¹¹¹

While the passage may be on the Canadian side of the boundary line, the United States has always maintained that it is an international strait used for international navigation through which there exists a right of nonsuspendable innocent passage. While Canada’s position has not been publicly articulated, Canada claims the Bay of Fundy as historic internal waters, and as McDorman explained, “it is presumed that the Bay of Fundy includes the Canadian waters in Passamaquoddy Bay and the Head Harbour Passage.”¹¹² Though the disagreement has been less prominent than that over the Northwest Passage, the dispute has periodically flared over proposals for the construction of infrastructure that would entail increased shipping through the passage.

The Canada-U.S. dispute regarding the Head Harbour Passage resurfaced in 2006 to 2007 as a result of proposals to site liquefied natural gas (LNG) facilities near Eastport, Maine, that would necessitate LNG tanker traffic through the Passage. The dispute had previously arisen in the 1970s and 1980s as a result of a proposed oil refinery near Eastport and consequent proposed oil tanker traffic through the Head Harbour Passage.¹¹³

Summary

The seven cases discussed in this section represent situations where the United States has protested with respect to what it considers to be the illegal inclusion of an international strait within a coastal state’s internal waters, thus defending the principle of freedom of navigation. As noted above, in the case of Japan, there appears to be little threat to the vital interests of the United States. By ensuring that significant portions of the La Pérouse/Soya, Osumi, Tsugaru, and Tsushima Straits remain outside of not only its internal but also its territorial waters, Japan has maintained access to the major shipping routes in the region and has guaranteed international mobility.

In three other cases, the Palk Strait, the Kerch Strait, and the Piombino Strait, the waterways are of little practical value to the United States and the international community. Whether by virtue of physical constraints (shallow water and the presence of reefs in the Palk Strait), or strategic

limitations (access to a small inner sea in the case of the Kerch Strait), or the proximity of more advantageous shipping lanes (west of Elba Island for the Piombino Strait), these three maritime routes are of little use to international stakeholders. It is highly unlikely that a resolution of the Northwest Passage dispute would have any effect on the activities within these straits.

The Northeast Passage (now better known as part of the Northern Sea Route), the Qiongzhou Strait, and Head Harbour Passage not only raise some of the same legal concerns as the Northwest Passage over the drawing of straight baselines or claims to historic title, but they also present an undeniable and very real strategic interest for the United States. While the United States has made its position clear in these three cases, it is interesting to note that none of the leading academic works that have looked at or discussed the precedent argument have mentioned these three straits. Only a handful of straits have been habitually mentioned in the literature: Gibraltar, Hormuz, and Malacca being the usual suspects. One can only speculate as to the reasons for this lack of interest in the Northeast Passage or Qiongzhou Strait. It may be that the same argument relating to proximate alternative routes also applies to the Northeast Passage. Some are now, in fact, predicting that transpolar shipping in the Arctic Ocean will soon be a reality, significantly diminishing the attraction of the Northern Sea Route for non-Russian companies and stakeholders. In the Chinese case, there may be a tacit acknowledgment that China does exercise exclusive sovereignty over the Qiongzhou Strait and that this situation is not about to change. As for Head Harbour Passage, its importance is more local in character and, thus, unlikely to feature in any global strategic assessment. It may be simply lumped in with the Northwest Passage dispute, its features bearing so many similarities to the stalemate over the Arctic waterway.

However, there can be no denying that India, Sri Lanka, Russia, Ukraine, Italy, Japan, and China might seize upon any concessions made by the United States in resolving the Northwest Passage dispute to bolster their own claims. Canada would also most likely invoke any compromise over the Northwest Passage in negotiations over the status of Head Harbour Passage. The stakes, on a political and legal level, are high for the United States; the weight afforded its interpretation of the various international rules would be severely weakened if its legal position was seen to vary on a case-by-case basis. Governments must be seen to be acting coherently lest they lose credibility in future diplomatic, political, and legal negotiations.

The conclusion is that there are situations around the world that might be influenced by a resolution of the Northwest Passage dispute in favour of Canada. However, they are relatively small in number and are not the cases usually identified as sounding alarm bells. Moreover, in four of the seven potential situations, freedom of navigation and worldwide maritime mobility are not at risk.

Straits Enclosed Within Internal Waters and the Role of International Treaties

Other straits enclosed within the internal waters of particular states have not been the subject of U.S. protests because they are governed by specific international treaties or agreements.

The Turkish Straits

The Bosphorus and the Dardanelles Straits connect the Black Sea with the Mediterranean. They can be easily and effectively blockaded, as shown by the ill-fated French-British attempt to use force in 1915 during World War I.¹¹⁴ In the early decades of the twentieth century, their status was a constant source of friction, especially between the then Soviet Union and Turkey, until the issue was largely settled with the Montreux Convention of 26 July 1936.¹¹⁵

While the 1936 Convention granted Turkey a wide measure of control over the straits, it also recognized and affirmed in Article 1 the principle of freedom of transit and navigation for all ships, including the right to transit through the straits without a local pilot.¹¹⁶ Turkey's position in regard to the straits was consolidated decades later by the drawing of straight baselines in May 1964 (Law 476) that enclosed the straits within Turkey's internal waters.¹¹⁷ The United States did not protest the 1964 Turkish act, no doubt convinced that the right of transit was adequately protected by the Montreux Convention. Washington considers that the Bosphorus and Dardanelles fall within the category of straits defined by Article 35(c) of the LOS Convention, which are exempted from the general straits regime.¹¹⁸

As maritime traffic steadily increased, so did Turkey's disenchantment with the Montreux regime, which it came to regard as inherently unsafe for shipping. Of particular concern was the risk of accidents within the narrow straits (700 metres wide at the narrowest point of the Bosphorus in the vicinity of crowded Istanbul, and 1.3 kilometres in the Dardanelles), especially in light of the huge number of transits. In 2007, about fifty-six thousand merchant ships crossed the Turkish Straits, including ten thousand tankers.¹¹⁹ Statistics bear out Turkey's concerns: between 1988 and 1992, there were 155 collisions in the Bosphorus alone.¹²⁰

In March 1994, the crude oil tanker MT *Nassia* was engulfed in flames in the Bosphorus after a collision with a smaller vessel, MV *Shipbroker*: nine thousand tons of petroleum were discharged, a further twenty thousand tons were burned over the course of four days, and the ship itself was completely destroyed. Traffic in the strait was suspended for a week, and the disaster is estimated to have caused thirty deaths and about \$1 billion in damages.¹²¹

Following the *Nassia* accident, the Turkish government established a traffic separation scheme in both straits with the International Maritime Organization's (IMO) approval.¹²² Van Dyke reported that Turkey also promulgated that year, "without complete IMO endorsement, the Turkish Straits Maritime Regulations, which established rules on ship reporting and the use of pilots and tugs."¹²³ Within the IMO, the Turkish initiative was criticized by a number of states, with the Legal Committee noting that "a substantial number of States considered the Turkish regulations to be inconsistent with the Montreux Convention and the IMO rules and regulations" and recommending that the matter should be further investigated.¹²⁴

In defence of its legislation, Turkey stressed that the 1982 LOS Convention grants coastal states the right to take measures in order to ensure the safe transit of ships and that it had sought and secured the IMO's approval.¹²⁵ Although Turkey's avowed intention was not to call the right of transit through the straits into question, but rather to guarantee the safety of such transits, nevertheless the United States and Russia felt compelled to challenge Turkey's regulatory measures, particularly, from the U.S. perspective, as they pertained to military vessels.¹²⁶ However, despite U.S., Greek, Ukrainian, Romanian, and, especially, Russian protests,¹²⁷ the regulatory measures promulgated by the Turkish government are still in place and are rigorously enforced.

The Danish Straits

On 14 March 1857, Denmark signed a treaty with several European states guaranteeing freedom of navigation through the Danish Straits, and, a few weeks later on 11 April 1857, a similar treaty was concluded with the United States.¹²⁸ Article 1 of the March 1857 treaty provides for the freedom of navigation of merchant ships through Danish territorial waters and the suppressing of all levies and impediments to navigation, especially in the three Danish straits connecting the Baltic Sea with the North Sea, the Sound, the Great Belt, and the Little Belt.¹²⁹ The creation of this specific regime for freedom of navigation through the Danish Straits did not, however, prevent Denmark from including the Little Belt within Danish internal waters when, in 1966, Copenhagen established a straight

baseline system.¹³⁰ The United States does not appear to have protested the Danish claim to the Little Belt, no doubt because the widest and deepest straits, the Sound and the Great Belt, remained international straits, though within Denmark's territorial waters. The Great Belt strait is the one used most for international maritime traffic. In any case, Denmark shows no inclination to enclose these larger straits within its baselines. And, even if it were to entertain such a move, it is likely that many states would argue that the 1857 treaties were tantamount to an admission that the Danish Straits are international straits used for international navigation subject to the regime of transit passage (Figure 6).

In 1969, Denmark and Sweden established a traffic separation scheme for segments of both the Sound and the Great Belt¹³¹ and, more recently, in 2007, instituted a mandatory reporting system in the Great Belt, with a vessel traffic service system (monitoring and navigation assistance) and a voluntary reporting system in the Sound.¹³² This assertion of jurisdiction to regulate maritime traffic within the two straits did not seem to elicit a protest from the United States. No doubt the United States considered it to be consistent with Article 41 of the LOS Convention and general customary principles, which allow states bordering straits to prescribe traffic separation schemes for the safe passage of ships.

The Åland/Ahvenanrauma Strait

The Strait of Åland connects the Baltic Sea with the Gulf of Bothnia that lies between the Swedish coast and the Finnish Åland archipelago. Finland enclosed the archipelago within straight baselines as early as 18 August 1956 and promulgated a new law with revised baselines in July 1995. Finnish law mandates a periodic review of Finland's basepoints and baseline system; the coordinates must be corrected every thirty years, and, as such, the present baselines are valid until 2024.¹³³ The United States does not appear to have questioned the Finnish straight baselines, even though to the west and south of the Åland Islands, they enclosed part of the waters of the strait within Finland's internal waters. This may be because the Finnish baselines leave the main channel of the Åland Strait within the territorial waters of either Sweden or Finland. The precise delimitation of the waters and the continental shelf between the two neighbouring states was negotiated in an agreement signed on 29 September 1972 (Figure 7).¹³⁴

However, the United States has protested Finland and Sweden's position to the effect that the Åland/Ahvenanrauma Strait is an Article 35(c) exception strait.¹³⁵ Relying on the 1921 Convention on the Demilitarization and Neutralization of the Åland Islands,¹³⁶ which regulates the status of the Åland archipelago, both Helsinki, by a

declaration on 21 June 1996,¹³⁷ and Stockholm, by a declaration on 25 June 1996,¹³⁸ claim that the strait is exempted from the general regime and rather is governed exclusively by the 1921 Convention. Finland and Sweden do not deny that a right of passage exists through the Åland Strait; they merely specify that, in their view, this transit regime is regulated by the 1921 Convention rather than by Part III of the 1982 LOS Convention.¹³⁹ The two Nordic countries argue that the Åland Strait has been habitually classified in the literature as a strait that comes within the purview of Article 35(c), much like the Danish Straits, the Turkish Straits, or the Strait of Magellan.

Despite these arguments, the United States has never recognized the views of Sweden and Finland on the status of the Ahvenanrauma Strait, citing the fact that it is not a party to the 1921 Convention.¹⁴⁰ This argument appears, however, rather weak. Nothing in Article 35(c) of the LOS Convention predicates its effect on a universal participation in a “long-standing international convention” that regulates a strait, and, furthermore, the United States has accepted that the Turkish Straits are governed by the 1936 Montreux Convention and that the Strait of Magellan is regulated by the 1881 treaty between Chile and Argentina,¹⁴¹ even though the United States is not a party to either of those two treaties. However, in these two situations, the “long-standing conventions in force” appear to serve U.S. interests, demonstrated in the discussion below.

The Straits of Magellan and Le Maire

The Strait of Magellan, between South America’s mainland and the archipelago of Tierra del Fuego, was of major strategic importance before the Panama Canal was built because it enabled ships to avoid plying the rough waters of Cape Horn. Both Chile in 1977¹⁴² and Argentina in 1966 and 1991¹⁴³ have promulgated straight baselines along their coasts, with Chile’s system being by far the more extensive. As the Magellan Strait lies almost entirely within Chile’s landmass, it is mainly the Chilean legislation that is of relevance. The Strait of Le Maire is between the Argentinean Staten Island and the main island of the Tierra del Fuego archipelago: It gives access to Cape Horn. To date, Argentina has not shown any intention of extending its straight baseline system so as to enclose the Le Maire Strait within its internal waters (Figure 8).

The U.S. Department of State noted that, while Chile’s straight baseline system has been drawn so as to include all of the Chilean coastal islands, it “has been deliberately constructed so as to exclude the Strait of Magellan from within the system of internal waters. The strait is subject of an international treaty (July 23, 1881) which guarantees free navigation

through its waters.”¹⁴⁴ It is Article 5 of the 1881 treaty between Chile and Argentina that provides for the neutralization of the strait and the freedom of navigation¹⁴⁵ and fulfilled the promise made by Chile in 1873 to the United States,¹⁴⁶ which, together with the United Kingdom, had pressured the two parties to guarantee free passage through the strategic strait.¹⁴⁷ The terms of the 1881 treaty regarding the status of the Strait of Magellan were subsequently confirmed in the 29 November 1984 Treaty of Peace and Friendship Between Chile and Argentina,¹⁴⁸ which put an end to an era of severe tension between the two countries over the possession of islands in the Beagle Channel.¹⁴⁹ Thus, not only is the Strait of Magellan in Chilean territorial waters and not in its internal waters, but a long-standing convention dating back to 1881, recently reaffirmed by both Chile and Argentina, also guarantees the freedom of navigation across the strait.

Summary

This section has highlighted that, while several strategic straits may be included wholly or partially in internal waters, or could have been, they are regulated by international treaties that limit the sovereignty of the states bordering such straits. Although the coastal states involved have, in some cases, adopted measures to regulate maritime traffic (e.g., in the Danish and Turkish Straits), these practices have not called the regime of transit passage into question. With respect to the Strait of Magellan, Chile has publicly pledged, through its treaty practice and governmental policies, its commitment to guaranteeing freedom of navigation through the waterway. It is difficult to envisage that what happens with respect to the Northwest Passage could be considered as a precedent that might unsettle or weaken such long-established and successful regimes.

Straits Where the Freedom of Navigation Is Maintained as a Result of Specific LOS Convention Rules and State Policies

There is a third category of cases where straight baselines have been drawn but do not restrain navigation, or could have been drawn but were not through choice.

The Greek Islands in the Aegean Sea

The Greek archipelago of the Aegean Islands comprises more than one hundred islands scattered across the sea, right up to the Turkish coast, and major sea lanes wind their way through the various straits between the Greek islands.¹⁵⁰ This geographical situation has greatly complicated the process of delimiting the territorial sea and the continental shelf between Greece and Turkey, a question still unresolved, and has been the source of tension between the two states.¹⁵¹ Greece and Turkey are also involved

in a territorial dispute over the ownership of two small islands, Imia/Kardak and Gavdos.¹⁵² Both the Greek and Turkish territorial waters in the Aegean Sea are limited to six nautical miles. The possibility that such waters might be extended to twelve nautical miles has fuelled Turkish concerns over a concomitant disproportionate increase in Greek-controlled maritime space (Figure 9).¹⁵³

Turkey established straight baselines in May 1964,¹⁵⁴ but, to date, Greece has refrained from following suit. The drawing of straight baselines around the perimeter of the Greek islands would have the effect of including most of the Aegean Sea within Greece's internal waters. Is there a risk that, at some point in the future, Greece might consider drawing such baselines?

A number of reasons militate against such a situation. First, it would not be to Greece's political advantage. It is well aware that the promulgation of such a system of baselines would be interpreted negatively by Turkey and would hinder boundary negotiations. And, at a more fundamental level, it would not be in line with the Greek maritime policy. Greece has officially stated on two separate occasions that the territorial sea is measured "from the coast," thus adhering to the normal baseline method. The first instance was in 1936 in Compulsory Law 230/1936, and the second was in Law 1182 in 1972.¹⁵⁵ Greece's ratification instrument to the 1958 Territorial Sea Convention explicitly states in two separate paragraphs that Greece will apply "the system of the normal baselines."¹⁵⁶ Furthermore, the 1995 Greek ratification instrument to the LOS Convention makes no mention of straight baselines,¹⁵⁷ contrary to the view expressed by some authors.¹⁵⁸ There is no technical impediment preventing Greece from resorting to the use of straight baselines: Its coast is deeply indented and fringed by several islands in close proximity, as mandated by the rules defined in the LOS Convention. Some authors have speculated that Greece's reluctance stems from concern that the rules of the LOS Convention not be used so as to unduly restrict the freedom of navigation and its fear that it might itself create a precedent that could impinge on free navigation.¹⁵⁹ This last fear appears, however, unwarranted to the extent that Article 8(2) of the LOS Convention provides that, where the drawing of a straight baseline encloses maritime areas as internal waters that were not previously considered as such, a right of innocent passage through those waters is preserved. Besides, sea lanes in the Aegean Sea are busy, and many Greek straits would certainly be considered international straits. It therefore must be concluded that Greece's reluctance rests on both the desire not to further strain its already

tense relations with Turkey and its long-established policy in favour of normal baselines.

The Minch Strait

On 24 September 1964, the United Kingdom drew a series of straight baselines joining the Hebrides Islands to the west coast of Scotland, thus enclosing the Minch Strait (the strait between the main coast of northern Scotland and the island chain) within British internal waters.¹⁶⁰ The United Kingdom recognizes that a right of innocent passage, rather than the regime of transit passage, applies in the Minch Strait. According to the United Kingdom, the Minch Strait is exempted from the right of transit passage under the rule set out in Article 38(1) of the LOS Convention, since a deepwater alternative route exists west of the Hebrides that has been surveyed and approved through the IMO as a traffic routing scheme.¹⁶¹ Tankers and larger vessels, in the aftermath of the disaster of MV *Braer* in 1993,¹⁶² are recommended to use this alternate route that lies outside Britain's internal waters, but even this alternative lane is closed off to oil tankers weighing more than ten thousand gross tonnage.¹⁶³ As an official of the British government asserted,¹⁶⁴ this position is consistent with Article 5(2) of the 1958 Territorial Sea Convention and Article 8(2) of the 1982 LOS Convention: "where the establishment of a straight baseline ... has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage ... shall exist in those waters." This position is in line with the U.S. view that, where a right of passage exists, it is not terminated by the promulgation of straight baselines (Figure 10).

The Strait of Messina

Italy's baseline system was not drawn so as to enclose the Strait of Messina within Italian internal waters, although it does include the Strait of Piombino.¹⁶⁵ Italy, concerned about the risk posed by traffic across the narrow Piombino Strait, was well aware that the level of international traffic through the Strait of Messina precluded its enclosure within its internal waters. Instead, it negotiated a special clause within Article 38 of the LOS Convention, which is often referred to as the Messina clause.¹⁶⁶ Not surprisingly, the Strait of Messina is cited as an example of the third category of straits exempted from the right of transit passage defined by Part III of the LOS Convention because an alternate route exists to the south and west of Sicily. It should be noted, however, that Article 45(1) stipulates that a nonsuspendable right of innocent passage applies to those straits excluded from the application of the regime of transit passage under Article 38(1).

As a result of a series of accidents in the Messina Strait, which culminated in the collision of Greek and Spanish tankers on 21 March 1985 and a major oil spill,¹⁶⁷ Italy has claimed the right to close the strait to ships over fifty thousand tons carrying oil or other toxic substances and has imposed mandatory pilotage for ships over fifteen thousand tons.¹⁶⁸ This assertion of control over shipping within the Strait of Messina is contested by the United States. A Diplomatic Note sent on 5 April 1985, a month before the adoption of the Italian decree concerning passage within the strait, stressed the United States' view that the Strait of Messina is a strait used for international navigation to which the regime of nonsuspendable innocent passage applies.¹⁶⁹ However, despite repeated protests, particularly from the United States, the partial closure of the strait has been maintained.¹⁷⁰

Summary

The three cases examined in this section seem to be immune from any Northwest Passage spillover effect. The United Kingdom recognizes that a right of innocent passage exists in the Minch Strait, though it is considered to be within British internal waters. Greece, for its part, seems steadfast in its reluctance to resort to straight baselines, although its coastline could well justify them. It is highly unlikely that Greece would abandon its traditional legal position and sacrifice its political interests on the basis of developments in the Northwest Passage case. Both the United Kingdom and Greece have been long-term and steadfast advocates of the principle of freedom of navigation. As for the Strait of Messina, Italy's national interests were perceived to be adequately protected with the inclusion of Article 38 in the LOS Convention. The Italian government has officially recognized through its policies (e.g., refraining from enclosing the Strait of Messina within its baselines) that a right of innocent passage exists through the strait, while invoking its right to regulate maritime traffic to ensure safety of navigation.

Major Straits

Most of the key strategic straits around the world, including between islands, cannot be wholly enclosed within the internal waters of the states bordering such straits. Rather, they fall within their territorial sea or archipelagic waters and often even have high seas corridors. The Sunda and Lombok Straits, for instance, are within Indonesian archipelagic waters;¹⁷¹ the Straits of Gibraltar, Hormuz, Malacca, Singapore, Torres, Bass, Dover, and Bab el-Mandeb are within the territorial waters of the bordering states.¹⁷² Even if Iran tried to extend its straight baseline system so as to include disputed islands, it could not wholly control the Strait of

Hormuz as part of its internal waters (Figure 11).¹⁷³ Similarly, even though Australia has expended considerable efforts since 2004 to develop a specific transit regime with mandatory pilotage for the Torres Strait,¹⁷⁴ it remains within Australia's territorial waters and exclusive economic zone (Figure 12). More importantly, these critical maritime arteries are "used for international navigation" on a massive scale: Malacca, 70,700 transits in 2007;¹⁷⁵ the Strait of Dover, about 146,000 ships annually;¹⁷⁶ Lombok, about 4,000 per year;¹⁷⁷ Gibraltar, about 80,000 ships yearly;¹⁷⁸ and Torres Strait, 3,000 vessels annually.¹⁷⁹ Their status as international straits, on the basis of both the geographical and functional criteria, is beyond question. They are therefore subject to the regime of transit passage defined by the LOS Convention that guarantees freedom of navigation and overflight without impediment. Any eventual resolution of the Northwest Passage dispute could not impinge on these established international straits and the recognized legal regime that applies to them.

There is no doubt that a number of measures restricting freedom of navigation through straits have been adopted in the past few decades, including in Europe and North America. Relying on the powers and prerogatives conferred by Articles 41 and 42 of the LOS Convention, states bordering straits have invoked environmental protection and accident prevention as justifications for these measures. At the heart of this trend are issues related to what Douglas Johnston, an eminent Canadian legal scholar, described as the "greening" of the law of the sea.¹⁸⁰ This tension between coastal state control and the freedom of navigation, often decried as a phenomenon of "creeping jurisdiction," is not, however, specific to the strait's regime. It is a fundamental issue that confronts the law of the sea as a whole.¹⁸¹

Conclusion

The United States appears to have consistently protested against regulations or limitations imposed on the transit regime of straits around the world, whether such straits involve internal waters or not. The United States has also repeatedly criticized what it considers to be an abusive reliance on Article 7 of the LOS Convention, which provides for the drawing of straight baselines.¹⁸² The U.S. position appears to have garnered some support from the International Court of Justice, which recently declared that coastal states do not have unfettered discretion in drawing straight baselines. In its 2001 decision in the *Qatar v. Bahrain* case, the Court affirmed that the rules for drawing straight baselines in Article 7 should be "applied restrictively. Such conditions are primarily that either the coastline is deeply indented and cut into, or that there is a fringe of islands along the coast in its immediate vicinity."¹⁸³

However, U.S. protests have been managed in different ways, hinting at the possible influence of political considerations. For example, as far as the right of transit through straits is concerned, it appears to have taken nine years for the United States to publicly protest against the inclusion of the Tuscan Archipelago within Italian straight baselines, whereas the United States wasted no time in dispatching Coast Guard icebreakers to challenge the Soviet claim regarding the Northeast Passage during the Cold War era.

Similarly, when in 1972 Iceland revised its baselines and created long segments in obvious disregard for the criteria of Article 4 in the 1958 Territorial Sea Convention, the measure did not elicit any immediate public U.S. response; it appears that a protest was only formally lodged in 1974.¹⁸⁴ It may also be noted that, while the United States promptly rebuffed China and Vietnam for their excessive baseline systems,¹⁸⁵ it seems to have taken eight years for it to send a protest to Thailand after a remarkable extension of its straight baselines in 1992.¹⁸⁶ Straight baselines along smooth coasts, as in the case of mainland Spain, the Norwegian island of Jan Mayen, or Madagascar, have also not been the subject of U.S. protest, though such baselines are seen as being in clear breach of Article 7(1) of the LOS Convention.¹⁸⁷ V. Prescott and C. Schofield have concluded that “inconsistencies of this kind reduce the force of the United States’ undoubtedly correct criticism of some straight baselines.”¹⁸⁸

Nevertheless, and even if, generally speaking, the United States has been consistent in protesting limitations to shipping in major straits throughout the world, a number of points must be noted.

1. There are, in fact, few cases where recognition of Canadian sovereignty over the Northwest Passage or some other type of jurisdictional arrangement could be invoked as a precedent and, as such, unsettle or cast doubt on existing regimes. The only potential areas of concern appear to be the Northeast Passage, the Qiongzhou Strait, and Head Harbour Passage, and, to a lesser extent, the Japanese, Piombino, Palk, and Kerch Straits.
2. Most of the strategic straits referred to in the academic literature as potentially influenced by the Northwest Passage precedent are simply not relevant. Such straits are not within the internal waters of the states bordering them and are therefore not subject to their exclusive control. More importantly, these major maritime highways are now unquestionably considered to be international straits to which the regime of transit passage applies. Their designation as international straits, and the legal rights that flow from such a designation, can no longer be reasonably

questioned, irrespective of the outcome of the Northwest Passage case.

3. The discrepancy between those cases where the Northwest Passage could be used as a precedent in favour of a coastal state but are not referred to in the literature and those cases put forth but that appear to be irrelevant regarding a possible precedent remains problematic. Political reasons might well be the driving factor. Another possible explanation could be that the United States is not in fact worried about creating a potential precedent for specific cases but has rather chosen to adopt a general, conservative policy, fearing that a Northwest Passage under Canadian sovereignty could be another illustration of creeping jurisdiction, an undesirable infringement on the freedom of navigation.

Notes

¹ For example, the United States responded to the adoption of Canada's 1970 Arctic Waters Pollution Prevention Act by making a public statement, "Statement on Government of Canada's Bills on Limits of the Territorial Sea, Fisheries and Pollution," 15 April 1970, 9 *I.L.M.* 605-06, and sending a Diplomatic Note, "Note from the Secretary of State to Embassy of Canada," 14 April 1970, in *Gulf of Maine Pleadings*, Vol. 5, Annex 8, to Reply of the United States, 529-30, para. 4, cited in T.L. McDorman, *Salt Water Neighbours* (New York: Oxford University Press, 2009), 58, fn. 53. Years later, in 1978, a Canadian official acknowledged that a "drawer full of protests" had been received concerning the Arctic Waters legislation. See Erik Wang, Director of Legal Operations, Department of External Affairs, Canada, House of Commons, Standing Committee on External Affairs and National Defence, Proceedings No. 16, 27 April 1978, at 16, cited in T.L. McDorman, "The New Definition of 'Canada Lands' and the Determination of the Outer Limit of the Continental Shelf," *Journal of Maritime Law and Commerce* 14 (1983): 195, 215, fn. 64.

² Positing that environmental changes were altering the "geo-strategic dynamics of the Arctic with potential consequences for international stability and European security interests," the Commission of the European Communities released in 2008 an official Communication setting out EU interests and proposals for action by member states in the region. Under Section 3.3, entitled "Transport," member states and the Community are specifically tasked with defending "the principle of freedom of navigation and the right of innocent passage in the newly opened routes and areas." Section 4 of the Communication on "Enhanced Arctic Multilateral Governance" specifically targets the Northwest Passage in its introductory paragraph, which highlights unresolved legal issues in the region: "Moreover, there are different interpretations of the conditions for passage of ships in some Arctic waters, especially in the Northwest Passage." Communication from the Commission to the European Parliament and the Council, "The European Union and the Arctic Region," Brussels, 20 November 2008, COM (2008) 763 final, available at eas.europa.eu/arctic_region/docs/com_08_763_en.pdf

(accessed 13 February 2012). The Council of the European Union welcomed the Communication and issued "Council Arctic Conclusions" in December 2009, which provide at Article 16 that, "With respect to the gradual opening, in the years to come, of trans-oceanic Arctic routes for shipping and navigation, the Council reiterates the rights and obligations for flag, port and coastal states provided for in international law, including UNCLOS, in relation to freedom of navigation, the right of innocent passage and transit passage, and will monitor their observance." Council of the European Union, "Council Conclusions on Arctic Issues," 2985th Foreign Affairs Council meeting, Brussels, 8 December 2009, available at www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/EN/foraff/111814.pdf (accessed 13 February 2012).

³ R. Dufresne, "Controversial Canadian Claims over Arctic Waters and Maritime Zones" (2008) Library of Parliament, Ottawa, PRB 07-47E, 2-3; D.R. Rothwell, "The Canadian-U.S. Northwest Passage Dispute: A Reassessment," *Cornell International Law Journal* 26 (1993): 331; E. Elliot-Meisel, "Politics, Pride and Precedent: The United States and Canada in the Northwest Passage," *Ocean Development and International Law* 40 (2009): 204; D. Pharand, "The Arctic Waters and the Northwest Passage: A Final Revisit," *Ocean Development and International Law* 38 (2007): 38; T.L. McDorman, "In the Wake of the 'Polar Sea': Canadian Jurisdiction and the Northwest Passage," *Cahiers de Droit* 27 (1986): 623; N.C. Howson, "Breaking the Ice: The Canadian-American Dispute over the Arctic's Northwest Passage," *Columbia Journal of Transnational Law* 26 (1988): 337.

⁴ See sources in *supra* note 3.

⁵ Compromise solutions might include considering the waters of the Northwest Passage as Canadian internal waters pursuant to Articles 7 and 8(1) of the 1982 LOS Convention, 1833 *U.N.T.S.* 397, and thus possibly subject to Article 8(2) navigation rights; that the waters of the Northwest Passage are a mixture of Canadian territorial waters (subject to the right of innocent passage) and exclusive economic zone (freedom of navigation for all ships); or even that the passage does not meet the legal criteria that define a strait used for international navigation.

⁶ J. Kraska, "The LOS Convention and the Northwest Passage," *International Journal of Marine and Coastal Law* 22 (2007): 279.

⁷ J. Kraska, "A Way Out of Diplomacy," *Canadian Naval Review* 5 (2009): 20; J. Kraska, "International Security and International Law in the Northwest Passage," *Vanderbilt Journal of Transnational Law* 42 (2009): 1109, 1128.

⁸ Elliot-Meisel, *supra* note 3, at 212.

⁹ Cited in "A Northern Dimension for Canadian Foreign Policy," Canada, Special Joint Committee on Canada's International Relations, *Independence and Internationalism: Report of the Special Joint Committee of the Senate and of the House of Commons on Canada's International Relations* (Ottawa: Supply and Services Canada, 1986), available at www.carc.org/pubs/v14no4E6.htm (accessed 17 March 2012).

¹⁰ Howson, *supra* note 3, at 373.

¹¹ D.L. Larson, "United States Interests in the Arctic Region," *Ocean Development and International Law* 21 (1989): 167, 179.

¹² L. Petersen, "International Strait or Internal Waters? The Navigational Potential of the Northwest Passage," *Proceedings of the Marine Safety and Security Council, The Coast Guard Journal of Safety at Sea* 66 (2009): 48.

¹³ S.J. Birchall, "Canadian Sovereignty: Climate Change and Politics in the Arctic," *Arctic* 59 (2006): iv.

- ¹⁴ R. Dube, "As Ice Melts, Debate over Northwest Passage Heats," *USA Today*, 4 April 2006.
- ¹⁵ C.M. Macneill, "Gaining Command and Control of the Northwest Passage: Strait Talk on Sovereignty," *Transportation Law Journal* 34 (2007): 355, 365.
- ¹⁶ Press release no. 121, issued 15 April 1970, quoted by Howson, *supra* note 3, at 353.
- ¹⁷ "Note from the Secretary of State to Embassy of Canada," 14 April 1970, *supra* note 1, cited in McDorman, *Salt Water Neighbours*, *supra* note 1, at 227, fn. 114.
- ¹⁸ Quoted in McDorman, *supra* note 3, at 637.
- ¹⁹ B. Mulroney, *Memoirs* (Toronto: McClelland and Stewart, 2007), 495, quoted in McDorman, *supra* note 1, at 227, fn. 114.
- ²⁰ U.S. Department of the Navy, "Strategic Objectives for the U.S. Navy in the Arctic Region," (2010) Ser. N00/100063, available at greenfleet.dodlive.mil/files/2010/09/US-Navy-Arctic-Strategic-Objectives-21-May-2010.pdf (accessed 17 March 2012).
- ²¹ Quoted in R. Dube, "As Ice Melts," *supra* note 14.
- ²² L.M. Alexander, "Exceptions to the Transit Passage Regime: Straits with Routes of 'Similar Convenience,'" *Ocean Development and International Law* 18 (1987): 420, quoted in A. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Heidelberg: Springer, 2010), 63.
- ²³ Cited in K.-L. Koh, *Straits in International Navigation: Contemporary Issues* (New York: Oceana, 1982), 24-26.
- ²⁴ S.H. Lay, R. Churchill, and M. Nordquist, *New Directions in the Law of the Sea*, Vol. 2 (London: Oceana, 1973), 885-91.
- ²⁵ D. Larson, "Security, Disarmament and the Law of the Sea," *Marine Policy* 1 (1979): 56.
- ²⁶ LOS Convention, *supra* note 5. Described by the president of the Third United Nations Conference on the Law of the Sea as "a constitution for the oceans," the 1982 LOS Convention is today "the globally recognized regime dealing with all matters relating to the law of the sea." See the UN Division for Ocean Affairs and the Law of the Sea (DOALOS) website at http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm (accessed 19 April 2011).
- ²⁷ See, for example, LOS Convention, *supra* note 5, Article 8(1), for the definition of a coastal state's internal waters; Article 3 in regard to the breadth of the territorial sea; Article 33 for the definition of the contiguous zone; Article 57 with respect to the exclusive economic zone; and Article 76(1) for the definition of the juridical continental shelf.
- ²⁸ "Au fur et à mesure que l'on s'éloigne de ses côtes, les compétences de l'État diminuent, pour disparaître presque totalement dans la haute mer." P. Vincent, *Droit de la mer* (Brussels: Éditions Larcier, 2008), 12.
- ²⁹ LOS Convention, *supra* note 5, Article 2(1), states that "[t]he sovereignty of a coastal State extends, beyond its land territory and *internal waters* and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea" (emphasis added).
- ³⁰ *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, [1986] I.C.J. Reports, 14, at 111, para. 212 (emphasis added).
- ³¹ "La présomption est dans le sens de l'ouverture des ports; mais présomption et non obligation." G. Gidel, *Le droit international public de la mer*, Book 2 (Châteauroux: Établissements Mellottée, 1932), 45, quoted in L. Lucchini and M. Voelckel, *Droit de la mer*, Book 2, Vol. 2 (Paris: Pédone, 1990), 287, fn. 598.

³² LOS Convention, *supra* note 5, Article 7, provides that a coastal state can resort to the use of straight baselines only “[i]n localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity....” In its 1951 decision in the *Anglo-Norwegian Fisheries Case*, the International Court held that the use of straight baselines was permitted in only two geographically defined circumstances: “Where a coast is deeply indented and cut into, as is that of Eastern Finmark, or where it is bordered by an archipelago, such as the ‘skjaergaard’ along the western sector of the coast here in question, the base-line becomes independent of the low-water mark, and can only be determined by means of a geometrical construction.” *Fisheries Case (United Kingdom v. Norway, [1951] I.C.J. Reports, 116, at 128-29.*

³³ In the *Anglo-Norwegian Fisheries Case*, *supra* note 32, the International Court considered three criteria in evaluating the legality of Norway’s straight baseline system. These criteria were subsequently integrated in LOS Convention, *supra* note 5, Article 7. Paragraph 3 of Article 7 stipulates that the “drawing of straight baselines must not depart to any appreciable extent from the general direction of the coast [the general direction criterion],” “and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the régime of internal waters [the close line between land and sea criterion].” Paragraph 5 of Article 7 provides, however, that where the threshold geographical criteria have been met, “account may be taken, in determining particular baselines, of economic interests peculiar to the region concerned, the reality and importance of which are clearly evidenced by long usage [the economic interests criterion].”

³⁴ See J.A. Roach and R.W. Smith, *United States Responses to Excessive Maritime Claims*, 2nd ed. (The Hague: Martinus Nijhoff, 1996).

³⁵ In May 1985, the Canadian government was informed that the U.S. Coast Guard icebreaker USCGC *Polar Sea* would sail through the Northwest Passage at the beginning of August on its way home to Seattle from Thule, Greenland. In the exchange of Diplomatic Notes that followed, both Canada and the United States reiterated their official positions regarding the status of the Northwest Passage, but they eventually came to an agreement that the summer transit by *Polar Sea* would in no way prejudice the legal position of either party. See R. Huebert, “Steel, Ice and Decision-Making: The Voyage of the Polar Sea and Its Aftermath: The Making of Canadian Northern Foreign Policy” (Ph.D. thesis, Dalhousie University, 1994).

³⁶ See Territorial Sea and Fishing Zones Act, R.S.C., c. T 7 (1970) (Can.).

³⁷ Canada, House of Commons, *Debates*, 33rd Parliament, 1st Session, Vol. V (1985), 10 September 1985 (Ottawa, 1985), 6463.

³⁸ *Anglo-Norwegian Fisheries Case*, *supra* note 32, at 115.

³⁹ Territorial Sea and Contiguous Zone Convention, 516 U.N.T.S. 205.

⁴⁰ McDorman, *Salt Water Neighbours*, *supra* note 1, at 249.

⁴¹ UN Secretariat, “Juridical Regime of Historic Waters, Including Historic Bays,” 1962, Doc. A/CN.4/143, *Yearbook of the International Law Commission* 2 (1962): 1, 23 (emphasis added).

⁴² D. Pharand, *Canada’s Arctic Waters in International Law* (Cambridge: Cambridge University Press, 1988), 113, stated, “British explorers, beginning with Martin Frobisher in 1576 and ending with those in search of the Franklin expedition in 1859, covered virtually all the waters of the Canadian Arctic Archipelago.”

⁴³ See *ibid.*, chap. 8, “Historic Waters Applied to the Canadian Arctic Archipelago.”

- ⁴⁴ M. Byers and S. Lalonde, "Who Controls the Northwest Passage?" *Vanderbilt Journal of Transnational Law* 42 (2009): 1133, 1154-55.
- ⁴⁵ UN Secretariat, "Juridical Regime of Historic Waters," supra note 41, at 13.
- ⁴⁶ Pharand, supra note 42, at 121-25.
- ⁴⁷ Territorial Sea Convention, supra note 39.
- ⁴⁸ LOS Convention, supra note 5, art. 18(2).
- ⁴⁹ *Ibid.*, art. 19(1).
- ⁵⁰ The activities listed in *ibid.*, Article 19(2), include any threat or use of force against the sovereignty, territorial integrity, or political independence of the coastal state; the loading or unloading of any commodity, currency, or person; any act of willful and serious pollution; and any fishing activities.
- ⁵¹ *Corfu Channel Case*, [1949] *I.C.J. Reports*, 4.
- ⁵² Pharand, supra note 3, at 30.
- ⁵³ *Corfu Channel Case*, supra note 51, at 28.
- ⁵⁴ See R.J. Grunawalt, "United States Policy on International Straits," *Ocean Development and International Law* 18 (1987): 445, 456; and Kraska, supra note 6, at 274.
- ⁵⁵ *Corfu Channel Case*, supra note 51, at 28.
- ⁵⁶ Pharand, supra note 3, at 35. See also R.R. Baxter, *The Law of International Waterways* (Cambridge, MA: Harvard University Press, 1964) 3; D.P. O'Connell, *The International Law of the Sea*, ed. I.A. Shearer (Oxford: Clarendon Press, 1982), 497; and R.R. Churchill and A.V. Lowe, *The Law of the Sea*, 3rd ed. (Manchester: Manchester University Press, 1999), 106.
- ⁵⁷ Reply of the United Kingdom, *Fisheries Case (United Kingdom v. Norway)*, *I.C.J. Pleadings* 1951, Vol. II, 555.
- ⁵⁸ LOS Convention, supra note 5, art. 42(1).
- ⁵⁹ *Ibid.*, art. 44 (emphasis added).
- ⁶⁰ Montreux Convention Regarding the Regime of the Turkish Straits, 20 July 1936, 173 *L.N.T.S.* 214.
- ⁶¹ The Florida Strait or Strait of Havami, which is ninety miles wide, connects the Gulf of Mexico with the Atlantic Ocean. Churchill and Lowe, supra note 56, at 105.
- ⁶² *Ibid.*
- ⁶³ *Ibid.*
- ⁶⁴ *Ibid.*
- ⁶⁵ *Ibid.*, at 121.
- ⁶⁶ *Ibid.*, at 123.
- ⁶⁷ LOS Convention, supra note 5, art. 53.
- ⁶⁸ Decreto del Presidente della Repubblica 26 aprile 1977, n. 816, available at unmig.sviluppoeconomico.gov.it/unmig/norme/816dpr77.htm (accessed 12 June 2012).
- ⁶⁹ A. de Guttry, "The Delimitation of Territorial Waters in the Mediterranean Sea," *Syracuse Journal of International Law and Commerce* 11 (1984): 377, 397.
- ⁷⁰ U.S. Navy Judge Advocate General's Corps and Department of Defense, "Italy," DoD 2005.1-M, *Maritime Claims Reference Manual*, Washington, DC, 1997, revised June 2005 and June 2008, 315, available at <http://www.dtic.mil/whs/directives/corres/html/20051m.htm>.
- ⁷¹ N. Ronzitti, *The Law of the Sea and Mediterranean Security*, Mediterranean Paper Series 2010 (Washington, DC: German Marshall Fund of the United States, 2010), 9.
- ⁷² See T. Scovazzi, "Management Regimes and Responsibility for International Straits, with Special Reference to the Mediterranean Straits," *Marine Policy* 19 (1995): 137, 151. Scovazzi adds that the Piombino Strait could not qualify for the Messina clause (LOS

Convention, *supra* note 5, Article 38(1)) because seaward of Elba there is a route of similar convenience, but it does not pass through the high seas. This route utilizes the Corsica Channel, another international strait, between the Italian archipelago of Tuscany and the French island of Corsica. In this area, the twelve-mile territorial seas of France and Italy overlap.

⁷³ W.E. Butler, "Pollution Control and the Soviet Arctic," *International and Comparative Law Quarterly* 21 (1972): 557; P. Horensma, *The Soviet Arctic* (London: Routledge, 1991), 113.

⁷⁴ W. Dunlap, "Transit Passage in the Russian Arctic Straits," *Maritime Briefing* 1(7) (Durham: International Boundary Research Unit, 1996), 39.

⁷⁵ "United States Aide-Memoire to the Soviet Union dated June 22, 1965" and "Diplomatic Note dated August 30, 1967" from the United States to the Soviet Union, as referenced in U.S. Department of State, "United States Responses to Excessive National Maritime Claims," *Limits in the Seas* 112, 9 March 1992, 71-73, available at www.state.gov/e/oes/ocns/opa/cl16065.htm (accessed 12 June 2012).

⁷⁶ The Diplomatic Note stated that the U.S. government "... strongly protests the position taken by the Soviet government with regard to the peaceful circumnavigation of the Arctic by the United States Coast Guard icebreakers Edisto and Eastwind," dated 30 August 1967 from the United States to the Soviet Union as referenced in *ibid.* See also Butler, *supra* note 73, at 558, and R.D. Brubaker and W. Østreng, "The Northern Sea Route Regime: Exquisite Superpower Subterfuge?" *Ocean Development and International Law* 30 (1999): 299, 305.

⁷⁷ Brubaker and Østreng, *supra* note 76, at 305. See also D. Pharand, "Soviet Union Warns United States Against Use of Northeast Passage," *American Journal of International Law* 62 (1968): 927, 927-29.

⁷⁸ Horensma, *supra* note 73, at 110-12.

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

⁸¹ *Ibid.*

⁸² The United States sent "operational assertions." Department of Defense, "Russian Federation," DoD 2005.1-M, *Maritime Claims Reference Manual*, *supra* note 70, at 489; Diplomatic Note 86/82, 2 August 1982; Diplomatic Note 10/86, January 1986.

⁸³ Department of Defense, "Japan," DoD 2005.1-M, *Maritime Claims Reference Manual*, *supra* note 70, at 327.

⁸⁴ U.S. Department of State, "Straight Baseline and Territorial Sea Claims: Japan," *Limits in the Seas* No. 120 (Washington, DC: U.S. Department of State, 1998), 13.

⁸⁵ D. Ortolland and J.-P. Pirat, *Atlas géopolitique des espaces maritimes* (Paris: Éditions Technip, 2010), 220.

⁸⁶ *Ibid.* See also Kyodo News, "Japan Left Key Straits Open for U.S. Nukes," *Japan Times*, 22 June 2009.

⁸⁷ Kyodo News, "Japan Left Key Straits Open," *supra* note 86.

⁸⁸ Department of Defense, "Japan," *supra* note 83, at 327.

⁸⁹ "Straight Baseline and Territorial Sea Claims: Japan," *supra* note 84, at 9.

⁹⁰ J.A. Roach and R.W. Smith, "Straight Baselines: The Need for a Universally Applied Norm," *Ocean Development and International Law* 31 (2000): 47, 65.

⁹¹ See Z. Gao, "China and the LOS Convention," *Marine Policy* 15 (1991): 202; M. Carr, "China and the Law of the Sea Convention," *Australian Journal of Chinese Affairs* 9 (1983): 35, 38; D. Dzurek, "The People's Republic of China Straight Baseline Claim,"

- Boundary and Security Bulletin* 4 (1996): 77; K. Zou, "Redefining the Legal Status of the Taiwan Strait," *International Journal of Marine and Coastal Law* 15 (2000): 255.
- ⁹² Declaration of the Government of the People's Republic of China on the Baselines of the Territorial Sea, 15 May 1996, reprinted in UN, *Law of the Sea Bulletin* No. 32, at 37-40 (1996); U.S. Department of State, "Straight Baseline Claim: China," *Limits in the Seas* No. 117 (19 July 1996).
- ⁹³ Department of Defense, "China," DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70, at 133-34.
- ⁹⁴ Ji Guoxing, *Asian Pacific SLOC Security: The China Factor*, Working Paper No. 10 (Canberra: Sea Power Center, Royal Australian Navy, 2002), 45.
- ⁹⁵ Dzurek, supra note 91, at 81.
- ⁹⁶ "Straight Baseline Claim: China," supra note 92, at 4-8.
- ⁹⁷ Dzurek, supra note 91, at 84; K. Zou, *Law of the Sea in East Asia: Issues and Prospects* (London: Routledge, 2005), 167.
- ⁹⁸ M. Herriman, "China's Territorial Sea Law and International Law of the Sea," *Maritime Studies* 92 (1997): 16; S. Bateman and C. Schofield, "State Practice Regarding Straight Baselines in East Asia—Legal, Technical and Political Issues in a Changing Environment," presented at the conference "Difficulties in Implementing the Provisions of UNCLOS," organized by the Advisory Board on the Law of the Sea (ABLOS), Monaco, 16-17 October 2008, available at <http://www.gmat.unsw.edu.au/ablos/ABLOS08Folder/Session7-Paper1-Bateman.pdf> (accessed 31 January 2011).
- ⁹⁹ LOS Convention, supra note 5, Article 38(1), provides that "... if the strait is formed by an island of a State bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the island a route through the high seas or through an exclusive economic zone or similar convenience with respect to navigational and hydrographical characteristics." In the case of the Qiongzhou Strait, ships can bypass Hainan Island to the south.
- ¹⁰⁰ Zou, supra note 97, at 167; Department of Defense, "China," supra note 93, at 126.
- ¹⁰¹ Guoxing, supra note 94, at 45.
- ¹⁰² Sri Lanka and India agreed on 26-28 June 1974 to the delimitation of a boundary through the "historic waters" of Palk Bay. The agreement, which came into force on 8 July 1974, has been printed in the Government of India's *Notice to Mariners*, Edition No. 9, Notices 133 to 156, 15 April 1975; see also "United States Responses to Excessive National Maritime Claims," supra note 75, at 67; Department of Defense, "India," at 275, and "Sri Lanka," 572, DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70; and Martin, supra note 22, at 71.
- ¹⁰³ Department of Defense, "India," 275, and "Sri Lanka," 572, supra note 102.
- ¹⁰⁴ *Ibid.*
- ¹⁰⁵ *Ibid.*
- ¹⁰⁶ S. Sivalingam, "General Features and Fisheries Potential of Palk Bay, Palk Strait and Its Environs," *Journal of National Science Foundation Sri Lanka* 33, no. 4 (2005): 225; A. Louchet, *La planète océane. Précis de géographie maritime* (Paris: Armand Colin, 2009), 158.
- ¹⁰⁷ Department of Defense, "Russian Federation," at 489; "Ukraine," 628, DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70. The Soviet Union already considered the Sea of Azov as internal waters. See J. Darby, "The Soviet Doctrine of the Closed Sea," *San Diego Law Review* 23 (1986): 685-700.
- ¹⁰⁸ Department of Defense, "Russian Federation," at 489; "Ukraine," 628, DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70; Darby at 108.

- ¹⁰⁹ *US Navy Commander's Handbook Annotated Supplement* (Washington, DC: Naval War College, 1997), 214.
- ¹¹⁰ McDorman, *Salt Water Neighbors*, supra note 1, at 254.
- ¹¹¹ *Ibid.*
- ¹¹² *Ibid.*, at 257.
- ¹¹³ *Ibid.*
- ¹¹⁴ During the Gallipoli or Turkish Straits campaign of World War I, between 19 February 1915 and 9 January 1916, a joint British and French operation was mounted to capture the Ottoman capital of Russia through the seizure of the Turkish Straits. Naval and later land attempts to seize the straits ended in Allied defeats. See D. Fromkin, *A Peace to End All Peace* (London: Holt, 2001), 311-15.
- ¹¹⁵ Montreux Convention, supra note 60. The parties to the 1936 Montreux Convention are Turkey, Great Britain, France, the Soviet Union, Bulgaria, Greece, Germany, Yugoslavia, and, with reservations, Japan.
- ¹¹⁶ The third paragraph of *ibid.*, Article 2, provides that “[p]ilotage and towage remain optional.”
- ¹¹⁷ U.S. Department of State, “Straight Baselines: Turkey,” *Limits in the Seas* No. 32 (Washington, DC: U.S. Department of State, 1971), 4-5.
- ¹¹⁸ “United States Responses to Excessive National Maritime Claims,” supra note 75, at 67.
- ¹¹⁹ J. Daly, “Tankers, Pipelines and the Turkish Straits,” *Eurasian Daily Monitor* 5(122), 26 June 2008, available at [http://www.jamestown.org/single/?no_cache=1&tx_ttnews\[tt_news\]=33755](http://www.jamestown.org/single/?no_cache=1&tx_ttnews[tt_news]=33755) (accessed 1 February 2011).
- ¹²⁰ Energy Information Administration, “Turkey: Environmental Issues,” March 2000, available at www.nuce.boun.edu.tr/turkey.html.
- ¹²¹ Daly, supra note 119.
- ¹²² The vessel traffic separation schemes for the Turkish Straits were subsequently updated in 1998. Turkish Straits Maritime Traffic Scheme Regulations, adopted in 1994, amended in 1998, Official Gazette, 6/11/1998 No. 23515. For the most updated version of the schemes, see International Maritime Organization (IMO), *Ships' Routing*, 2010 ed. (London, 2010), B.III, 17-23.
- ¹²³ J.M. Van Dyke, “Transit Passage Through International Straits,” in *The Future of Ocean Regime-Building*, eds. Aldo Chicop, et al. (The Hague: Martinus Nijhoff, 2009), 177, 205-06.
- ¹²⁴ *Ibid.* See also N. Ünlü, *The Legal Regime of the Turkish Straits* (The Hague: Martinus Nijhoff, 2002), 74.
- ¹²⁵ *Ibid.*, 204-05; P. Vincent, *Droit de la Mer* (Brussels: Larcier, 2008), 66.
- ¹²⁶ S.V. Pavlyuk, “Regulation of the Turkish Straits: UNCLOS as an Alternative to the Treaty of Montreux and the 1994 Maritime Traffic Regulations for the Turkish Straits and Marmara Region,” *Fordham International Law Journal* 22 (1998): 962.
- ¹²⁷ *Ibid.*
- ¹²⁸ Treaty for the Redemption of Sound Dues, 14 March 1857, 116 C.T.S. 357; The Convention for the Discontinuance of the Sound Dues Between Denmark and the United States, 11 April 1857, 116 C.T.S. 465.
- ¹²⁹ See W.L. Schachte and J.P.A. Bernhardt, “International Straits and Navigational Freedoms,” *Virginia Journal of International Law* 33 (1993): 546; and A. Oude Elferink, “The Regime of Passage of Ships Through the Danish Straits,” NILOS Papers Online No. 3, 2, available at www.uu.nl/uupublish/content/straits.pdf (accessed 5 October 2010), and *International Journal of Marine and Coastal Law* 15 (2000): 555.

¹³⁰ Royal Decree No. 437 of 21 December 1966, as amended by Decree No. 189 of 19 April 1978. Executive Order No. 242 of 1 May replaced them, amended by Executive Order No. 680 of August 2003. See Department of Defense, "Denmark," DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70, at 167.

¹³¹ See *Ships' Routeing*, supra note 122, at B. I-19.

¹³² See *Ships' Routeing*, supra note 122, at G. I-3; and "Order on the Mandatory Ship Reporting System BELTREP and Navigation Under the East Bridge and West Bridge in the Storebælt (Great Belt)," Order No. 488 of 31 May 2007; Navigation Through Danish Waters (Copenhagen: Danish Maritime Authority & The Danish Maritime Safety Administration, March 2011).

¹³³ Department of Defense, "Finland," DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70, at 227-33; U.S. Department of State, "Straight Baselines: Finland," *Limits in the Seas* No. 48 (Washington, DC: U.S. Department of State, 1972), 2-6.

¹³⁴ U.S. Department of State, "Continental Shelf Boundary: Finland-Sweden," *Limits in the Seas* No. 71 (Washington, DC: U.S. Department of State, 1976), 2.

¹³⁵ LOS Convention, supra note 5, Article 35, provides that "[n]othing in the Part affects: (c) the legal regime in straits in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits."

¹³⁶ The Convention Relative à la Non-Fortification et à la Neutralisation des Îles d'Åland/Convention Relating to the Non-fortification and Neutralization of the Åland Islands 20 October 1921, original French text of the convention is available at www.kulturstiftelsen.ax/traktater/eng_fr/1921c_fr.htm. The parties are Denmark, Estonia, Finland, France, Germany, Italy, Latvia, Poland, Sweden, and the United Kingdom. A similar separate treaty was concluded between Finland and the Soviet Union in 1940: Treaty Between Finland and the Union of Socialist Soviet Republics Concerning the Åland Islands, 11 October 1940, available at www.kulturstiftelsen.ax/traktater/eng_fr/1940_en.htm. The 1921 Convention followed a convention signed on 30 March 1856, annexed to the Paris Peace Treaty, the Convention on the Demilitarization of the Åland Islands, available at mjp.univ-perp.fr/constit/aland1856.htm. The three treaties are still in force and are now considered to be a founding block of international law in the region. The provisions of the treaties include the permanent demilitarization of the islands and a three-nautical-mile territorial sea around them. No naval force may enter the neutralized zone, but innocent passage across the territorial waters is permitted. See M. Koskenniemi and M. Lehto, "Finland and the Law of the Sea," in *The Law of the Sea: The European Union and Its Member States*, eds. L. Pineschi and T. Treves (The Hague: Martinus Nijhoff, 1997), 147-48.

¹³⁷ Van Dyke, supra note 123, at 197.

¹³⁸ W. Otto Lampe, "The Kiel Canal," in *The Baltic Sea: New Developments in National Policies and International Cooperation*, eds. R. Platzöder and P. Verlaan (The Hague: Martinus Nijhoff, 1996), 144-45.

¹³⁹ *Ibid.* See also Koskenniemi and Lehto, supra note 136, at 132-33; and E.J. Molenaar, "Navigational Rights and Freedoms in a European Context," in *Navigational Rights and Freedoms and the New Law of the Sea*, eds. D. Rothwell and S. Bateman (The Hague: Martinus Nijhoff, 2000), 33.

¹⁴⁰ "United States Responses to Excessive National Maritime Claims," supra note 75, at 67.

- ¹⁴¹ *Dispute Between Argentina and Chile Concerning the Beagle Channel*, 18 February 1977, XXI; UN *Reports of International Arbitral Awards* reproducing the 1881 Boundary Treaty, 15-111.
- ¹⁴² Decree No. 416 of 14 July 1977, Department of Defense, "Chile," DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70, 121; U.S. Department of State, "Straight Baselines: Chile," *Limits in the Seas* No. 80 (Washington, DC: U.S. Department of State, 1978), 1-5.
- ¹⁴³ Law 17 094 of 29 December 1966 and Law 23 968, 14 August 1991, Department of Defense, "Argentina," DoD 2005.1-M, *Maritime Claims Reference Manual*, supra note 70, at 29; U.S. Department of State, "Straight Baselines: Argentina," *Limits in the Seas* No. 44 (Washington, DC: U.S. Department of State, 1972), 1-2.
- ¹⁴⁴ "Straight Baselines: Chile," supra note 142, at 5.
- ¹⁴⁵ Chile-Argentina Treaty, supra note 141; and see Vincent, supra note 125, at 67.
- ¹⁴⁶ M.A. Morris, *The Strait of Magellan* (The Hague: Martinus Nijhoff, 1988), 68 and 104.
- ¹⁴⁷ E. Brüel, *International Straits*, Vol. 2 (London: Sweet and Maxwell, 1947), 225, quoted in *ibid.*, at 65.
- ¹⁴⁸ Treaty of Peace and Friendship Between Chile and Argentina, 1984, available at www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/CHL-ARG1984PF.PDF.
- ¹⁴⁹ "United States Responses to Excessive National Maritime Claims," supra note 75, at 69.
- ¹⁵⁰ For instance, the Kea Strait between Kea and Makronisos Islands, Sifnos Strait between Sifnos and Sérifos Islands, and Káfireas Strait between Euboea and Andros Islands.
- ¹⁵¹ See Y. Acer, *The Aegean Maritime Disputes and International Law* (Dartmouth: Ashgate, 2003).
- ¹⁵² M. Pratt and C. Schofield, "The Imia/Kardak Rocks Dispute in the Aegean Sea," *Boundary and Security Bulletin* (Spring 1996): 61-66.
- ¹⁵³ Acer, supra note 151, at 45-55; Ortolland and Pirat, supra note 85, at 82-85.
- ¹⁵⁴ U.S. Department of State, "Straight Baselines: Turkey," *Limits in the Seas* No. 80 (Washington, DC: U.S. Department of State, 1971), 2-4. A move Greece protested that same year. International Court of Justice, *Aegean Sea Continental Shelf Case (Greece vs Turkey): Pleadings, Oral Arguments, Documents*, Minutes of the Public Sitzings, August-September 1976 (The Hague: International Court of Justice, August-September 1976), 89.
- ¹⁵⁵ K. Ioannou, "The Greek Territorial Sea," in *Greece and the Law of the Sea*, ed. Theodore Kariotis (The Hague: Kluwer Law International, 1997), 138; Acer, supra note 151, at 24-25.
- ¹⁵⁶ Ioannou, "The Greek Territorial Sea," at 155, 138; de Guttry, supra note 69, at 387; Ioannou E. Roucouas, "Greece and the Law of the Sea," in *The Law of the Sea: The European Union and Its Member States*, eds. L. Pineschi and T. Treves (The Hague: Martinus Nijhoff, 1997), 230; and Acer, supra note 151, at 24-25.
- ¹⁵⁷ "Table of Claims to Maritime Jurisdiction" (as at 31 July 2010), UN Division of Ocean Affairs and the Law of the Sea, available at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/table_summary_of_claims.pdf (accessed 15 February 2011).
- ¹⁵⁸ For example, Martin, supra note 22, at 74.

¹⁵⁹ A. Strati, "Greek Shipping Interests and the Law of the Sea," in *Greece and the Law of the Sea*, ed. Theodore Kariotis (The Hague: Kluwer Law International, 1997), 279; Acer, *supra* note 151, at 25.

¹⁶⁰ U.S. Department of State, "Straight Baselines: United Kingdom," *Limits in the Seas* No. 23 (Washington, DC: U.S. Department of State, 1970), 2-8. The baselines were subsequently slightly corrected in 1979 and again in 1996 with the Territorial Sea (Amendment) Order 1996 (No. 1628). See Department of Defense, "United Kingdom," DoD 2005.1-M, *Maritime Claims Reference Manual*, *supra* note 70, at 636.

¹⁶¹ C. Whomersley, Deputy Legal Adviser, Foreign and Commonwealth Office, British Government, London, personal communication with the authors, 6 January 2011, and 9 June 2011.

¹⁶² MV *Braer* was a tanker carrying 85,000 tonnes of crude oil that ran aground in hurricane-force winds off the Scottish Shetland Islands in January 1993. A total of 84,700 tonnes of crude oil spilled into the North Sea, causing huge damage. BBC, "Oil Tanker Runs Aground Off Shetland," available at news.bbc.co.uk/onthisday/hi/dates/stories/january/5/newsid_2506000/2506223.stm (accessed 24 May 2011).

¹⁶³ D. Anderson, *Modern Law of the Sea* (Leiden: Martinus Nijhoff, 2008), 166-67; Vincent, *supra* note 125, at 27. The limitation on heavy oil tankers is in IMO SN/Circ.159, cited in Martin, *supra* note 22, at 140.

¹⁶⁴ Whomersley, *supra* note 161.

¹⁶⁵ See discussion of the Piombino Strait under Section III above.

¹⁶⁶ See *supra* note 62 and J. Antonio de Yturriaga, *Straits Used for International Navigation: A Spanish Perspective* (Dordrecht: Martinus Nijhoff, 1991), 13; W. Schachte, "International Straits and Navigational Freedoms," presentation at the Twenty-sixth Law of the Sea Institute Annual Conference, Genoa, 2-26 June 1992, 12; and Scovazzi, *supra* note 72, at 137, 143.

¹⁶⁷ T. Scovazzi, "Evolution of International Law of the Sea," in *Collected Courses of the Hague Academy of International Law* (The Hague: Martinus Nijhoff, 2001), 181.

¹⁶⁸ Decree of the Minister of Merchant Marine of 8 May 1985 Relating to the Strait of Messina (in Official Gazette of the Italian Republic of 11 May 1985, No. 110); Ministry of Infrastructure and Transport, Comando Generale Del Corpo Delle Capitanerie Di Porto, VTS Messina Straits, *User Manual* (Rome: Official Decree, Official Gazette of the Italian Republic, December 2009), 5.

¹⁶⁹ "United States Responses to Excessive National Maritime Claims," *supra* note 75, at 70. See also A. Gioia, *Manuale Breve. Diritto Internazionale* (Milan: Giuffrè Editore, 2010), 195; and Ronzitti, *supra* note 71, at 9.

¹⁷⁰ T. Treves, "Italy and the Law of the Sea," in *The Law of the Sea: The European Union and Its Member States*, eds. L. Pineschi and T. Treves (The Hague: Martinus Nijhoff, 1997), 335.

¹⁷¹ Ortolland and Pirat, *supra* note 85, at 200-01.

¹⁷² *Ibid.*, at 86-87 and 220-30.

¹⁷³ The authors tested this hypothesis with GIS software.

¹⁷⁴ See R.C. Beckman, "PSSAs and Transit Passage—Australia's Pilotage System in the Torres Strait Challenges the IMO and UNCLOS," *Ocean Development and International Law* 38 (2009): 325.

¹⁷⁵ Marine Department of Malaysia, available at http://www.ialathree.org/iwrap/index.php?title=Malacca_Strait_Traffic_Volume_and_Incident_Rates (accessed 21 February 2011).

- ¹⁷⁶ Department of Transport, "The Dover Strait," London, available at www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-searchandrescue/mcga-theroleofhmcoasguard/mcga-_hm_coastguard_-_the_dover_strait.htm (accessed 15 June 2011).
- ¹⁷⁷ J. Ho, "The Security of Sea Lanes in Southeast Asia," *Asian Survey* 46 (2006): 560.
- ¹⁷⁸ Gibraltar Ferry, available at www.aferry.to/Gibraltar-ferry.htm (accessed 15 June 2011).
- ¹⁷⁹ Australian Maritime Safety Authority, "Torres Strait: Strait Facts/Risk Assessment," available at http://www.amsa.gov.au/marine_environment_protection/torres_strait/risk.asp (accessed 15 June 2011).
- ¹⁸⁰ D.M. Johnston, "The Challenge of International Ocean Governance—Institutional, Ethical and Conceptual Dilemmas," in *Towards Principled Oceans Governance—Australian and Canadian Approaches and Challenges*, eds. D.R. Rothwell and D.L. VanderZwaag (London: Routledge, 2006), 379.
- ¹⁸¹ Beckman, *supra* note 174, at 349; S. Bateman, "Coastal State Regulation of Navigation in Adjacent Waters—The Example of the Torres Strait and Great Barrier Reef," paper presented at the *ABLOS 2010 Conference*, "Contentious Issues in UNCLOS—Surely Not?" Monaco, 25-28 October 2010, available at www.gmat.unsw.edu.au/ablos/ABLOS10Folder/ABLOS.htm.
- ¹⁸² See V. Prescott and C. Schofield, *The Maritime Political Boundaries of the World* (The Hague: Martinus Nijhoff, 2005), 143.
- ¹⁸³ Maritime Delimitation and Territorial Questions Between Qatar and Bahrain, [2001] *I.C.J. Reports*, 103, para. 212.
- ¹⁸⁴ Prescott and Schofield, *supra* note 182, at 149-50.
- ¹⁸⁵ *Ibid.*
- ¹⁸⁶ *Ibid.*
- ¹⁸⁷ *Ibid.*
- ¹⁸⁸ *Ibid.*

13

Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?

Michael Byers and Andreas Østhagen*

Introduction

In September 2010, the Norwegian and Russian foreign ministers co-authored an op-ed article in a Canadian newspaper, *The Globe and Mail*, clearly directed at the Canadian government.¹ They celebrated the conclusion of a Norway-Russia boundary treaty in the Barents Sea as a “notable milestone” and expressed “hope that the agreement will inspire other countries in their attempts to resolve their maritime disputes, in the High North and elsewhere, in a way that avoids conflict and strengthens international co-operation.” The two ministers then offered the following “lesson”:

[E]normous value can be created — both for individual countries and for the international community at large — when states consider their interests in a long-term perspective, aiming for sustainable solutions. This is exactly the case for the boundary in the Barents Sea and Arctic Ocean. The value unlocked for each country by settling this boundary now will far exceed the potential advantage one country could have gained by holding out for a larger gain in maritime space for itself.

With their choices of publishing venue and message, the Norwegian and Russian ministers were expressing an assumption widely shared among outside observers of Canadian foreign policy — namely, that the country

* Originally published in *Canadian Yearbook of International Law/Annuaire canadien de droit international* 54 (2017): 1-62. See the original for additional maps accompanying the text.

lags behind when it comes to the resolution of maritime boundary disputes.

Canada has five unresolved (or only partially resolved) maritime boundaries within two hundred nautical miles of its shores in the Gulf of Maine, Beaufort Sea, Lincoln Sea, Dixon Entrance, and seaward of Juan de Fuca Strait. It also has two fully resolved boundaries in the waters between Canada and Greenland (Denmark) and around the French islands of St. Pierre and Miquelon.² Significantly, four of the five unresolved or only partially resolved disputes are with the United States. In 2000, the situation prompted Australian observers Victor Prescott and Grant Boyes to write, "It is interesting that two countries which have considerable experience in negotiating maritime boundaries and which possess excellent technical services have not been able to delimit one of their four potential maritime boundaries."³

In this article, we explore the reasons why Canada has so many unresolved maritime boundary disputes. We do so, in part, through a direct comparison with Norway, which has resolved all of its maritime boundary disputes, including a major dispute with Russia. We seek to understand whether, ultimately, the two countries' different records of maritime boundary dispute settlement result from different assumptions or policy preferences within the two governments rather than factors specific to any particular dispute, such as its geography, legal history, political context, or the existence and commercial viability of natural resources. Norway is well suited for such a comparison. Canada and Norway both have long coastlines and large exclusive economic zones (EEZs), significant portions of which are located in the Arctic. Both share at least one maritime boundary with a much more powerful neighbour, as well as boundaries involving more equal power relationships. Both are developed countries with sophisticated, well-staffed foreign ministries. Both have significant offshore oil and fishing industries, with activities taking place, or interest having been expressed, in areas close to some of their maritime boundaries. And both recently put new emphasis on Arctic foreign policy, beginning with Norway's Foreign Minister Jonas Gahr Støre in 2005 and Canada's Prime Minister Stephen Harper in 2006.

Of course, there are significant differences between the two countries. Canada's much more powerful neighbour is the United States, a close trading partner and military ally. Norway's much more powerful neighbour is Russia, an antagonist during the Cold War and an ongoing source of military concern. Canada's Arctic is often difficult to access due to the presence of year-round sea ice; most of Norway's Arctic remains ice free throughout the year. Still, the similarities provide room for

comparison and, therefore, for new insights into why Canada has so many unresolved maritime boundary disputes. Examining these two countries also enables us to generate some general observations about maritime boundary disputes and the factors that contribute to their resolution.

This article does not examine boundaries that were fully resolved in the distant past, such as the boundary between the San Juan Islands of Washington State and the Southern Gulf Islands of British Columbia. Nor does it examine boundaries more than two hundred nautical miles from shore – between adjoining or opposing “extended continental shelves” – except insofar as they are relevant to boundaries within two hundred nautical miles from shore. The first section of this article examines each of Canada’s maritime boundary disputes in turn, explaining (1) the dispute, (2) the resolution efforts, and (3) the drivers behind those efforts. The second section takes the same approach to each of Norway’s maritime boundaries, all of which are now resolved. A third and final section then compares and contrasts the two countries’ approaches to maritime boundary dispute settlement, asking whether Canada’s unresolved disputes are the result of factors specific to those particular disputes or whether assumptions or policy preferences, specific to the Canadian government, also play a role.

Canada

Worldwide, hundreds of maritime boundaries have been settled since the mid-twentieth century when developments in international law allowed coastal states to extend their jurisdictions farther offshore, creating new boundaries and adding political and economic relevance to previously unimportant, unresolved ones.⁴ The development of coastal state rights over the continental shelf, advanced in the 1945 *Truman Proclamation* and codified in the 1958 *Geneva Convention on the Continental Shelf (Geneva Convention)*, raised the prospect of exclusive jurisdiction over offshore oil and gas.⁵ Then, in the 1970s, many coastal states extended their exclusive fisheries jurisdiction to two hundred nautical miles from shore (and, in some cases, even farther). In 1982, the right to a two-hundred-nautical-mile EEZ was consolidated in the *United Nations Convention on the Law of the Sea (UNCLOS)*.⁶

Canada was affected by all these developments. In 1969, the discovery of a major oil field at Prudhoe Bay, Alaska, raised the prospect of oil and gas deposits in a disputed section of the Beaufort Sea. In 1977, the extension of fisheries jurisdictions by Canada and the United States created a large boundary dispute in the Gulf of Maine, in the middle of a rich fishery that had previously been located in international waters.⁷

1977-78 NEGOTIATIONS ON THE “PACKAGE DEAL”

In 1977, Canada and the United States opened negotiations with a view to resolve all four of their maritime boundary disputes. Canada began by expressing a willingness to make concessions in the Beaufort Sea in return for U.S. concessions seaward of Juan de Fuca Strait and, especially, in the Gulf of Maine.⁸ It also sought a hydrocarbon-sharing regime for the Beaufort Sea, so that oil and gas would not “become a political or economic issue between the two countries because there would be joint access” and “where the line was wouldn’t make any difference.”⁹ This attempt at a “package deal” failed because the United States insisted on dealing with each of the disputes independently and because Canada was concerned that, in the absence of a package deal, a concession on one dispute could weaken its legal positions on the others. The United States was also worried about the creation of precedents in regard to international law, not necessarily in regard to disputes involving Canada but, rather, in regard to disputes elsewhere.¹⁰

Both countries were also concerned about domestic politics. As Christopher Kirkey explained,

Canadian acceptance of the U.S. position on the Beaufort Sea boundary — in the absence of an equitable, comprehensive settlement — would by consequence place the [Pierre] Trudeau government in the politically undesirable position of having to defend an agreement that unquestionably favoured American maritime jurisdictional interests in the North over those of Canada. Such an unpalatable scenario could therefore not be permitted by Canadian officials to transpire. As Blair Hankey indicated, “we were concerned about the supposed political sensitivity of the 141st meridian ...we understood that to compromise the line would be politically delicate.”¹¹

Similarly, the U.S. negotiating team “staunchly believed that even if they agreed to the Canadian proposal [for a package deal], it stood no chance of being politically supported both in the interagency process, and by Congress. Such a proposal, if accepted, would undoubtedly be viewed as predominantly favouring Canadian interests.”¹² Finding themselves in a standoff, the parties shifted their attention to singularly resolving the dispute in the Gulf of Maine, where immediate, competing economic interests made some kind of solution imperative.

GULF OF MAINE

The Dispute

The Gulf of Maine is located southwest of the provinces of Nova Scotia and New Brunswick and east-southeast of the states of Maine and Massachusetts. It contains rich fishing grounds, most notably on the shallow Georges Bank, which historically was located in international waters – beyond the territorial sea. In 1977, Canada and the United States claimed fisheries zones out to two hundred nautical miles that overlapped on the eastern portion of Georges Bank.¹³ The 8,648-square-nautical-mile overlap was due to the methods used to delimit the extent of maritime boundaries. While Canada delimited its zone in the Gulf of Maine through a straightforward application of the equidistance principle, the United States drew a modified equidistance line that took into account “special circumstances,” especially the shape of the seafloor.¹⁴

Resolution Efforts

In 1979, Canadian and U.S. negotiators signed two treaties that were then sent to the U.S. Senate for its “advice and consent” to ratification. The *East Coast Fisheries Agreement* provided for a complicated regime of transboundary fishing rights but was never put to a vote due to opposition from the U.S. fishing industry.¹⁵ However, the *Agreement to Adjudicate the Maritime Boundary* received the Senate’s advice and consent.¹⁶ In this second treaty, Canada and the United States agreed to submit the dispute to a “chamber” made up of five members of the International Court of Justice (ICJ).¹⁷ They asked the chamber to delimit a single maritime boundary – that is, for both the continental shelf and the EEZ. They excluded from the chamber’s mandate the seabed and waters around Machias Seal Island (discussed below) and did so by instructing that the delimitation begin at a designated point “A” south of that feature.

In 1984, the chamber delimited a boundary out to two hundred nautical miles from the U.S. coast that divided the disputed zone almost exactly in half.¹⁸ However, the end point of the adjudicated line was only 175.5 nautical miles from the Canadian coast and, as a result, 163 square nautical miles of water column and seabed located within two hundred nautical miles of the Canadian coast were left unresolved. Canada’s jurisdiction to regulate fishing in that small area, beyond the U.S. two-hundred-nautical-mile limit but south of the equidistance line, has not been accepted by the United States.¹⁹

Drivers

According to Christopher Kirkey, the decision to focus Canada-U.S. negotiating efforts on this dispute was prompted by a series of

developments in 1978, including “the unrestricted fishing of cod, haddock, pollock and scallop species by U.S. vessels in the Gulf of Maine” and “the reciprocal barring of Canadian and American fishing vessels from the other’s waters.”²⁰ These developments led to a “growing concern about the risk of being plunged into a British-Icelandic type of fish war without either side wishing it.”²¹ Another factor was the potential for oil and gas in the Gulf of Maine and the fact that both countries had already issued exploration licences there.²² All of this created a situation in which, according to U.S. negotiator David Colson, “an agreement was essential in light of the high level of human activity which occurred in the disputed area.”²³ Finally, McDorman reports that the resort to adjudication rather than negotiation was caused, in part, by “the unwillingness of either the Canadian or U.S. governments to be tarred by the concerned domestic constituencies with having compromised the national position.”²⁴

MACHIAS SEAL ISLAND

The Dispute

Machias Seal Island is a tiny feature (0.08 square kilometres), located about eight nautical miles from Maine and ten nautical miles from New Brunswick, that is disputed between Canada and the United States. The dispute extends to two nearby islets, Gulf Rock and North Rock, as well as the surrounding water column and seabed, an area of around 210 square nautical miles. The water column and seabed are at issue because resolving the dispute over the island will determine on which side the maritime boundary is located. The dispute over the island itself dates back to the 1783 *Treaty of Paris*, which assigned the newly independent United States all islands within twenty leagues (sixty nautical miles) of its coast.²⁵ However, the treaty also excluded any island that was ever part of Nova Scotia, and a 1621 Letters Patent issued by King James I for the purposes of establishing the colony of Nova Scotia includes Machias Seal Island. The western portion of Nova Scotia later became New Brunswick. In addition to the *Treaty of Paris*, the United States’ position is based on the proximity of Machias Seal Island to the U.S. mainland. In addition to the British land grant, Canada’s position is based on the presence of a British (and then Canadian) lighthouse on the island since 1832 – something the United States did not protest until 1971.

Resolution Efforts

In 1979, the dispute over Machias Seal Island and the surrounding water and seabed was excluded from the mandate of the chamber of the ICJ established to resolve the maritime boundary farther out in the Gulf of Maine. In its judgment, the chamber explained this decision on the basis

that “the Parties wish to reserve for themselves the possibility of a direct solution of this dispute.”²⁶

Drivers

Machias Seal Island and the surrounding seabed and waters have little economic value. No oil or natural gas has been discovered in the area. Although the surrounding waters contain lobsters, which have been the subject of friction between Canadian and U.S. fishermen, the potential fishery is not particularly large, and the two governments have exercised restraint, including by adhering to a policy of flag state enforcement.²⁷ These factors help to explain why the dispute has been left unresolved. As Donald McRae told *The Globe and Mail* in 2012, “every now and then it crops up as an issue between the two parties, and then they just simply try to put aside because I don’t think either side is interested in dealing with it.”²⁸

The “possibility of a direct solution” may not have been the real reason why the dispute over Machias Seal Island and the surrounding seabed and water was excluded from the mandate of the chamber of the ICJ. Governments often find it more difficult to give up (or risk giving up) territory because land generally has more domestic political significance than seabed or water. As Bernard Oxman has explained, “maritime boundary issues do not normally seem to engage the same level of political attention as many disputes over land territory. The resultant agreements are often viewed as economic or technical.”²⁹

Machias Seal Island also constitutes a zero-sum negotiating situation, with most of the foreseeable results involving one country obtaining uncontested title to the exclusion of the other. This zero-sum outcome could be balanced with concessions elsewhere – for instance, in a multi-boundary package deal – or it could be overcome through the creation of a condominium, whereby both countries would share sovereignty over the island, enabling the drawing of a maritime boundary up to the low water mark at both ends. But the United States was opposed to a package deal in 1977-78, and condominiums, although not unprecedented, are rare in international law.³⁰ Finally, it is possible that the interests of subnational governments were in play. Any Canadian concession on Machias Seal Island would diminish the size of New Brunswick, thus bringing that province’s interests (and perhaps constitutional rights) into play. Similar considerations would seem to apply *vis-à-vis* the state of Maine.

BEAUFORT SEA

The Dispute

The Beaufort Sea is the shallow portion of the Arctic Ocean located between Alaska and Canada's High Arctic islands, just north of the Mackenzie River delta. The dispute over the location of the boundary began in 1976 when the United States protested the line that Canada was using while issuing oil and gas concessions.³¹ The existence of the dispute was confirmed the following year when both countries delineated fishing zones out to two hundred nautical miles and used different lines.³² The dispute is centred on the wording of a treaty concluded between Russia and Britain in 1825 (the United States took on Russia's treaty rights when it purchased Alaska in 1867; Canada acquired Britain's rights in 1880).³³ The treaty sets the eastern border of Alaska at the "meridian line of the 141st degree, in its prolongation as far as the frozen ocean."³⁴ Canada claims that this treaty provision establishes both the land border and the maritime boundary and that both must follow the 141° meridian straight north. In contrast, the United States argues that the treaty's delimitation applies to land only and that regular methods of maritime boundary delimitation apply beyond the coastline. In the case of the Beaufort Sea, the United States sees an equidistance line as the legally and geographically appropriate approach.³⁵ Since the coast of Alaska, the Yukon, and the Northwest Territories slants east-southeast from Point Barrow, Alaska, to the mouth of the Mackenzie River, such an equidistance line trends progressively further east of the line that Canada prefers at the 141° west meridian, running in a roughly north-northeast direction from the terminus of the land border to the two-hundred-nautical-mile limit. As a result, within that distance from shore, an approximately 6,250-square-nautical-mile pie-shaped disputed sector was created.³⁶

Resolution Efforts

1977-78 Negotiations

As discussed above, Canada and the United States sought to resolve the Beaufort Sea dispute along with their other maritime boundary disputes in 1977-78. At the time, Canada indicated a willingness to approach the disputes as a package and to trade losses in the Beaufort Sea for gains elsewhere. The United States insisted on treating each dispute separately, and so the two countries focused on their most pressing boundary dispute – the Gulf of Maine.

2010-11 Discussions

Every summer from 2008 through 2011, two icebreakers – one American, the other Canadian – worked together in the Beaufort Sea gathering information about the shape of the ocean floor and the character and thickness of the seabed sediments.³⁷ It was a partnership born of necessity because neither country had two icebreakers capable of the task and because the two countries required a complete scientific picture of the seabed in order to determine the geographic extent of their sovereign rights to an extended continental shelf more than two hundred nautical



Map 13.1: Beaufort Sea: U.S. and Canadian claims (from Sovereign Geographic, online: <<http://www.sovereigngeographic.com>>).

miles from shore. The collaborative mapping beyond two hundred nautical miles may have also opened the door to the resolution of the boundary dispute, by identifying that the continental shelf in the Beaufort Sea might stretch 350 nautical miles or even farther from the shore. The possibility of coastal states having sovereign rights over an extended continental shelf is codified in Article 76 of *UNCLOS*, which Canada has ratified and the United States treats as largely reflective of customary international law.³⁸

The introduction of the extended continental shelf into the equation added a twist to the Beaufort Sea boundary dispute, for if one extends the equidistance line preferred by the United States beyond two hundred nautical miles, it changes direction and begins tracking towards the northwest. It does so because of a change in direction of the Canadian coast on the eastern side of the Mackenzie River delta and even more so because of the presence of Banks Island, a large feature on the Canadian side of the Beaufort Sea. The effect of Banks Island is so strong that the equidistance line crosses over the 141° west meridian (which, naturally, continues straight north to the North Pole) and heads towards the maritime boundary between the United States and Russia. This leaves a large and as-yet-unspoken-for area of extended continental shelf to the west of the 141° west meridian and east of the equidistance line, essentially the reverse of the disputed sector farther south. In simple spatial terms, the U.S. line appears to favour Canada beyond two hundred nautical miles and vice versa.

In short, what appeared to be a zero-sum negotiating situation now offers opportunities for creative trade-offs, opportunities that resulted in at least some diplomatic re-engagement in 2010. In February of that year, an official from the Canadian Department of Foreign Affairs cited a probable overlap in the two states' views of the areas subject to their extended continental shelf rights as the main reason for a renewed effort to resolve the Beaufort Sea boundary dispute.³⁹ In the Speech from the Throne in March 2010, the Canadian government signalled its desire to "work with other northern countries to settle boundary disagreements."⁴⁰ This was followed by a public invitation to open negotiations specifically on the Beaufort Sea boundary, delivered in May 2010 by then Foreign Affairs Minister Lawrence Cannon during a speech in Washington, DC.⁴¹ By the time Cannon released Canada's Arctic Foreign Policy Statement in August 2010, which reiterated Canada's commitment to resolving boundary disputes, at least one meeting between U.S. and Canadian diplomats had already taken place.⁴² The discussions were suspended at some point in 2011, after the two countries decided they needed more

scientific information on the existence and location of hydrocarbon reserves before negotiating a boundary. Other factors in the suspension could have included Cannon's departure from the Foreign Affairs portfolio, a decrease in world oil prices in mid-2011, and concerns about Canadian domestic law and public opinion, as discussed below.

Drivers

Economic Interests

As far back as the 1970s, seismic surveys and exploratory wells established that oil and gas were present in the Beaufort Sea.⁴³ In 2006, Devon Canada discovered a potential 240 million barrels of oil just to the east of the disputed zone.⁴⁴ The next year, Imperial Oil and ExxonMobil Canada committed to spending CDN \$585 million in return for exploratory rights over a nearby area of seabed.⁴⁵ Then, in 2008, British Petroleum agreed to spend CDN \$1.2 billion in exploring an area adjacent to the Imperial-Exxon-Mobil leases.⁴⁶ In 2010, the three companies concluded a joint venture to explore for oil and gas in the two offshore parcels.⁴⁷ On the U.S. side of the disputed zone, Shell spent USD \$7 billion on an exploratory campaign.⁴⁸ As a result of all of this attention, the disputed boundary became of economic interest – because companies need to know which permitting and regulatory authority is responsible for any particular area where they might wish to drill.

World oil prices dropped sharply in 2014, and, in 2015, Shell shut down its campaign north of Alaska without making a find.⁴⁹ Then, in December 2016, both the Canadian and U.S. sides of the Beaufort Sea were put off limits for further oil and gas development as a result of moratoria announced by the Obama administration and the Trudeau government.⁵⁰ Although the U.S. moratorium will likely be overturned by the Trump administration, and the Canadian moratorium is subject to review every five years, the oil industry has lost interest in the boundary dispute – at least for the moment.

As for fishing interests, there is no commercial fishery in the Beaufort Sea, though Indigenous people from both Canada and Alaska engage in some subsistence fishing there.

Concerns About a Precedent

Canada has always been cautious about compromising on its legal position in the Beaufort Sea because of a concern that this might detrimentally affect its position on other boundary disputes. This is why Canada sought a “package deal” in 1977, as Kirkey explains:

[I]f Ottawa were to accommodate the U.S. position on the Beaufort Sea boundary, this would by consequence not only necessitate a departure from the official Canadian government

position on the issues (i.e., the 141st meridian should serve as the boundary), but more importantly, be inconsistent with Canada's overall legal approach to delimiting maritime boundaries. That latter approach, which sought to delimit boundaries by equidistance — except in cases where an applicable treaty exists — would be highly discredited and of little use in future international maritime boundary cases that Canadian officials would have to confront. In particular, the Canadian negotiation delegation was explicitly concerned that if it acquiesced to the U.S. favoured position of the equidistance principle in the Beaufort Sea, and mutual satisfaction was not achieved on all three other outstanding maritime boundaries, that the Canadian legal position would be severely weakened should at least one of these remaining cases ultimately go before the International Court of Justice for settlement.⁵¹

As we saw above, the United States had similar concerns about the effect of a precedent.

Zero-Sum Versus Win-Win

In 1977-78, Canada and the United States found themselves in a zero-sum negotiating situation in the Beaufort Sea. In other words, the dispute could only be resolved if one state won and the other lost or if both lost. Either Canada would have to surrender on the 141° west meridian, or the United States would have to surrender on the equidistance principle, or both would have to surrender simultaneously. Concerns about precedents made all of these options even more unpalatable. Canada was seeking a way out of the zero-sum scenario when it suggested a package deal — a deal, for instance, that would have allowed a U.S. “win” in the Beaufort Sea in return for a Canadian “win” in the Gulf of Maine. And if Canada could have resolved all four disputes with the United States simultaneously, its concerns about a precedent would have disappeared. This was not the case with the United States, however, since its concerns about a precedent extended to disputes with other countries.

Negotiations over the Beaufort Sea boundary resumed in 2010 because of the emergence of a possible win-win outcome as a result of the addition of an extended continental shelf to the dispute, combined with the fact that the equidistance line makes a significant change in direction just beyond two hundred nautical miles from shore.⁵² Canada could now accept the application of the equidistance principle while retaining a large portion of the newly expanded disputed area. Alternatively, the United States could accept Canada's interpretation of the 1825 treaty and, thus,

the 141° west meridian and still gain a very large portion of extended continental shelf.

Domestic Law and Politics

The governments of the Yukon and Northwest Territories sometimes express concern when the United States makes statements or takes regulatory action with respect to the disputed zone.⁵³ But neither territorial government has legal rights in the Beaufort Sea. Unlike the maritime areas off Nova Scotia and Newfoundland and Labrador, where federal-provincial agreements exist, the federal government has sole jurisdiction over offshore resources in the Arctic. Moreover, the economies of the Yukon and Northwest Territories would likely benefit from a resolution of the boundary dispute – if it led to oil and gas activity – since some of the infrastructure and services needed to support such offshore operations would be based in Tuktoyaktuk and Inuvik, while traffic on the Dempster Highway would increase. Politicians and residents of the two territories are likely aware of this; in any event, no opposition was expressed in 2010 when news reports indicated that Canada-U.S. discussions were underway.

The greatest domestic impediment to the resolution of the boundary dispute could be the 1984 *Inuvialuit Final Agreement*, a constitutionally recognized land claims agreement in which the Canadian government and the Inuvialuit used the 141° west meridian to define the western edge of the Inuvialuit Settlement Region.⁵⁴ In the Settlement Region, and specifically in an area called the Yukon North Slope, which includes the offshore to the northeast of the terminus of the international land border, Canada recognized Inuvialuit harvesting rights over fish and game and promised to protect the area.⁵⁵ Under international law, Canada could enter into a maritime boundary treaty with the United States that would likely be valid and binding regardless of the domestic rights of the Inuvialuit.⁵⁶ However, under Canadian law, the federal government has a duty to consult, limit any infringement of Aboriginal rights as much as possible, make any such limitation clear through an Act of Parliament, and provide compensation.⁵⁷ It is possible that the existence of these Inuvialuit rights contributed to the 2011 suspension of discussions on the Beaufort Sea boundary. It is also possible, however, that the Inuvialuit could be persuaded to support a resolution of the boundary dispute in return for financial compensation and employment opportunities.

Finally, it is possible that concerns about public opinion across the rest of Canada contributed to the suspension of discussions. Stephen Harper branded himself as a champion of Canadian Arctic sovereignty during his nine years as prime minister from 2006 to 2015. Any concession, especially

to the United States, would have been treated harshly by the Canadian media and opposition parties. If concerns about public opinion existed in 1978, even in the context of a possible package deal, they may have existed in 2011 also.

DIXON ENTRANCE

The Dispute

In 1903, the United States and Britain established an arbitration panel to delimit the border between the Alaska Panhandle and British Columbia.⁵⁸ At the southern end of the panhandle, the panel drew a boundary down the middle of Portland Canal to just south of where it opens into Dixon Entrance, a roughly seventy-five-nautical-mile-long, thirty-nautical-mile-wide body of water that connects the mainland coast to the open sea just to the north of Haida Gwaii (formerly the Queen Charlotte Islands). The panel designated that point just south of the mouth of Portland Canal as Point B and drew a straight line from there to Point A at Cape Muzon on Dall Island, seventy-two nautical miles away.⁵⁹ The resulting “A-B line” runs along the north side of Dixon Entrance.

Canada’s position is that Points A and B are part of the arbitrated boundary delimitation, just like the other turning points, thus giving all of Dixon Entrance to Canada. The United States claims that the A-B line simply allocates title over land, leaving the maritime boundary to be decided in accordance with international law – in its view, the equidistance principle. In 1977, the United States used the equidistance principle to define a fisheries conservation zone through the length of Dixon Entrance. The difference between the Canadian and U.S. positions amounts to 828 square nautical miles, which is spread over two areas south of the A-B line. Two small areas north of the A-B line but south of the equidistance line are, curiously but logically, not claimed by either country.

The dispute also has consequences seaward of Dixon Entrance since the location of the boundary between the two countries’ two-hundred-nautical-mile EEZs, which Canada and the United States agree should be delimited according to equidistance, depends on the boundary that is closer inshore for its starting point. Canada’s preferred line starts at Point A, and the United States’ preferred line starts at a point equidistant between Cape Muzon and Langara Island (the northernmost part of Haida Gwaii).⁶⁰

Resolution Efforts

In 1945, Canadian and U.S. negotiators reached a tentative settlement of the Dixon Entrance dispute whereby citizens of both countries would,

outside of the respective three-nautical-mile territorial seas, have the right to fish and navigate on either side of an equidistance boundary. However, the Canadian government pulled back from the settlement in the face of objections from the British Columbia government.⁶¹ In 1977, Dixon Entrance was one of the disputes included in Canada's proposal for a package deal – a proposal that failed to receive support from the United States because of that country's refusal to bundle disputes when negotiating.

Drivers

Economic Interests

Dixon Entrance has not been explored for oil and gas due to a long-standing moratorium on oil and gas drilling off Canada's west coast and a U.S. focus on proven reserves further north. However, there are rich stocks of salmon and halibut in the area. Over the decades, both Canada and the United States have occasionally arrested each other's fishing boats in Dixon Entrance. These tensions over fisheries have subsided in recent decades for two reasons. First, in 1980, the two countries agreed, in an exchange of notes, to observe flag state enforcement (that is, they each agreed to deal with their own fishing boats and not to arrest boats from the other country).⁶² Second, in 1985, the two countries concluded the *Pacific Salmon Treaty* and created the binational Pacific Salmon Commission to cooperatively manage the fishery along the entire coast.⁶³

Security Interests

U.S. Navy submarines regularly pass through Dixon Entrance on their way to an acoustic testing facility on Back Island, just north of Ketchikan, Alaska. In the early 1990s, Canada accorded navigational permission to the submarines, and the United States may have agreed to provide notice in advance of transits.⁶⁴ However, the United States has never accepted that Canadian permission is required.⁶⁵ Clearly, the U.S. Navy would prefer not to be reliant on the permission of a foreign government to access one of its own facilities, and this factor alone might go a long way towards explaining the United States' refusal to accept the A-B line as a maritime boundary.

Public Opinion

In Canada, the A-B line has great historical significance. It resulted from a four-to-two arbitral decision in which a British-appointed arbitrator broke ranks with his two Canadian colleagues and sided with the three Americans to favour the United States on the location of the land border as well as with regard to several islands. The public reaction in Canada was intense, and, as a result, the position that the A-B line

constitutes a maritime boundary – to the disadvantage of the United States – has become a nationalist rallying point. Even today, more than a century later, any Canadian government would be cautious about making concessions in Dixon Entrance.⁶⁶

Zero-Sum Situation

As was the case until recently in the Beaufort Sea, Canada and the United States find themselves in a zero-sum situation in Dixon Entrance. Any compromise leading to a boundary somewhere between the A-B and equidistance lines would see both countries conceding rich potential fishing grounds, abandoning firm positions, and creating precedents that might damage them with regard to disputes elsewhere.

Interests of a Subnational Government

The BC provincial government claims jurisdiction, *vis-à-vis* the Canadian federal government, over the water column and seabed within Dixon Entrance, east of a line between Point A on Cape Muzon and Haida Gwaii. It does so on the basis that these rights belonged to the colony of British Columbia and were not surrendered when the colony joined Canada in 1871. The BC government also claims jurisdiction, on the same basis, over Hecate Strait, Queen Charlotte Sound, Johnstone Strait, and the Georgia Strait, plus the Canadian side of Boundary Pass, Haro Strait, and Juan de Fuca Strait (though only to where the latter strait opens into the Pacific Ocean). In 1984, the Supreme Court of Canada upheld the province's claims with regard to all of these areas except Dixon Entrance and Hecate Strait, which had not been included in the question put to the court.⁶⁷ The BC government has involved itself in the Dixon Entrance dispute, blocking a tentative settlement in 1945 and issuing a position paper on the dispute in 1977.⁶⁸ It could therefore be expected to challenge any Canada-U.S. resolution of the dispute, both politically and in the Canadian courts, unless it was included in the negotiations. Although the involvement of a provincial government in international negotiations is certainly possible, it would introduce another level of complexity to an already complex dispute.

SEAWARD OF THE STRAIT OF JUAN DE FUCA

The Dispute

The boundary between Canada and the United States within the Strait of Juan de Fuca was settled in 1846,⁶⁹ but the development of offshore rights in the mid-twentieth century led to the emergence of a new dispute just west of the strait in the Pacific Ocean. The dispute involves just 15.4 square nautical miles of EEZ, spread over two lens-shaped areas. The continental shelf is very narrow west of Juan de Fuca Strait, and the

potential for oil and gas is therefore limited. However, there are salmon and halibut stocks on Swiftsure Bank, part of which falls within the lens-shaped area located closest to shore. Canada and the United States agree that the equidistance principle should be applied. The dispute turns on Canada's straight baselines, which it adopted along the indented southwest coast of Vancouver Island in 1969. The United States immediately objected on the basis that the baselines were constructed "contrary to established principles of international Law of the Sea."⁷⁰

The dispute became salient in 1977 when Canada declared a two-hundred-nautical-mile-wide fishing zone. The zone was delimited using an equidistance line that was based on Canada's straight baselines to the north and the low-water mark along the U.S. coast to the south. That same year, the United States declared its own fisheries zone, which it delimited using an equidistance line based on the low-water lines of both coasts. The United States, in addition to disputing the legality of Canada's straight baselines, contests whether straight baselines are appropriately used for the purpose of delineating an equidistance boundary.

Resolution Efforts

Apart from Canada's inclusion of the dispute within its proposed package deal in 1977, no negotiations have taken place. According to Ted McDorman, "[t]he small area of disputed waters seaward of the Juan de Fuca Strait has caused little concern and has not been the subject of Canada-U.S. discussions."⁷¹

Drivers

There is no evidence of pressure from the fishing industry to resolve the dispute. As in the situation with Dixon Entrance, the cooperative management of the fishery under the Pacific Salmon Commission, combined with flag state enforcement, has created a workable situation for both sides.⁷² For this reason, public opinion does not play any role since very few Canadians and Americans are even aware of the existence of the dispute. There is some degree of regional interest, with the province of British Columbia expressing the view in the 1970s that the boundary should follow the underwater "Juan de Fuca Canyon" rather than an equidistance line.⁷³

As in the other Canada-U.S. boundary disputes, both countries seem concerned that compromising on a principle of delimitation in one instance could weaken their position in another. Added to this, the same concern may exist over the law governing straight baselines. Indeed, the Canada-U.S. dispute seaward of Juan de Fuca Strait could be linked to a dispute over straight baselines in the Arctic. When Canada adopted straight baselines around its high Arctic archipelago in 1985, they were

immediately protested by the United States and the European Community.⁷⁴ Both Canada and the United States might therefore be concerned that any compromise on straight baselines along Vancouver Island could weaken their position in the Arctic, where the dispute over straight baselines is linked to the much more significant dispute over the status of the Northwest Passage.

1973 CANADA-GREENLAND BOUNDARY

The Dispute

In 1970, Canada extended its territorial sea from three to twelve nautical miles.⁷⁵ When doing so, it overlooked that the new limit extended at several points more than halfway across Nares Strait, the narrow channel between Ellesmere Island and Greenland.⁷⁶ Once this consequence was realized, boundary negotiations with Denmark commenced. The boundary under negotiation was potentially quite extensive because Greenland lies within four hundred nautical miles of the long eastern coastlines of both Ellesmere Island and Baffin Island, each of which is larger than the United Kingdom.

Resolution Efforts

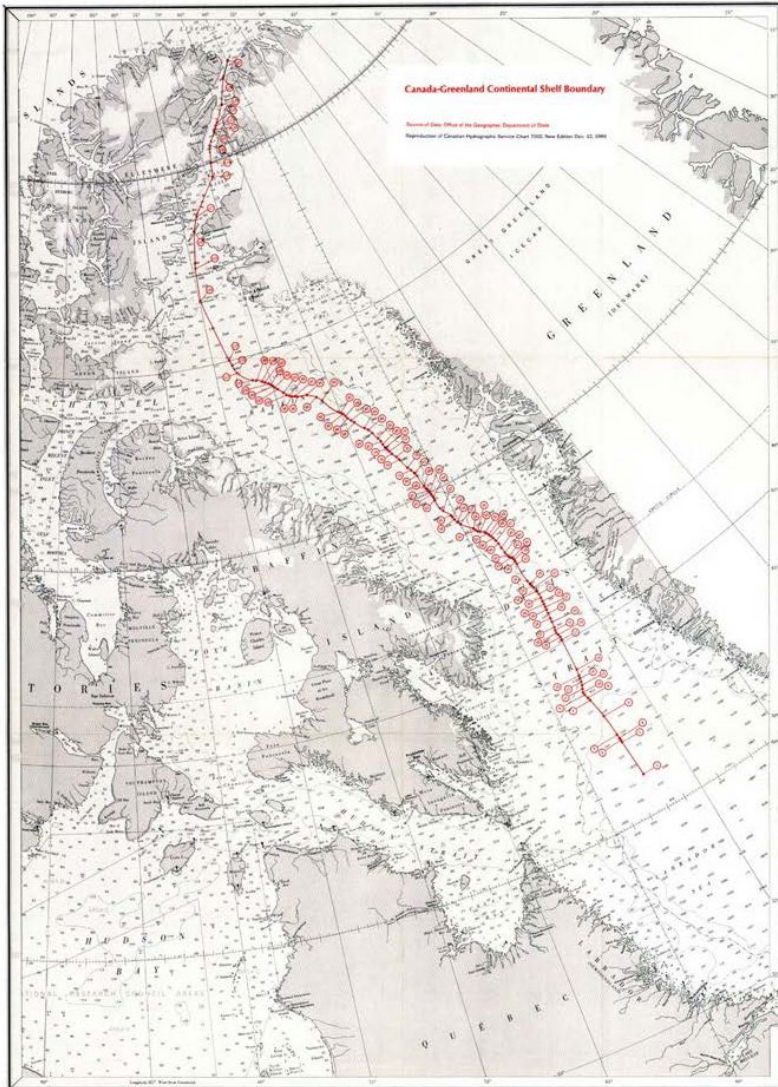
In 1973, Canada and Denmark agreed to divide the ocean floor using an “equidistance line” – that is, a line that at every point (or, in this case, a series of agreed “turning points”) is an equal distance from the nearest point on each of the two opposing (or, in other cases, adjacent) coasts.⁷⁷ Since then, the two countries have also used the resulting 1,450-nautical-mile boundary to define their fishing zones, meaning that the continental shelf delimitation has informally become an all-purpose maritime boundary.⁷⁸ One provision of the *Agreement on the Continental Shelf between Greenland and Canada* addresses the possibility of hydrocarbon reserves straddling the new boundary.⁷⁹ But unlike some more modern maritime boundary treaties, it only requires that the parties negotiate in these circumstances rather than providing a process or mechanism for resolving the matter.

The treaty does have one unusual element – namely, the way it deals with a disputed island located on the equidistance line. Hans Island, with an area of only 1.3 square kilometres, is not mentioned in the treaty.⁸⁰ Rather, the maritime boundary stops just short of the south shore of the island and begins again just off the north shore of the island. As a result, the dispute over Hans Island has been rendered nearly irrelevant since it is now only about a tiny amount of land, with the surrounding seabed and water column having been allocated by treaty (and practice consistent

with that treaty). Although the dispute over the island continues, neither country seems to take it very seriously.⁸¹

Drivers

In 1973, there was only a small amount of commercial fishing in the southern portion of Baffin Bay. The fishery, which is mostly for turbot and shrimp, has grown in the ensuing decades and has led to several small



Map 13.2: Canada–Greenland continental shelf boundary (from Canadian Hydrographic Service *Chart 7000*, rev. ed., 12 December 1969).

disputes between Canada and Greenland over “straddling stocks” – that is, fish populations that move back and forth between the EEZs of different countries or between an EEZ and the high seas.⁸² There was some interest in the potential for oil and gas in Baffin Bay, which is made up entirely of continental shelf. In 1971, Shell obtained exploratory leases from the Canadian government for 860 square kilometres near the eastern entrance of Lancaster Sound.⁸³ In the ensuing decades, some exploratory drilling has taken place in Baffin Bay, although only on the Greenland side and, so far, without any commercially viable deposits being found. As Bernard Oxman explains, “Canada and Denmark are said to have been motivated by the desire to avoid future disputes in a largely unsettled area where Greenland faces the Canadian Arctic.”⁸⁴

LINCOLN SEA

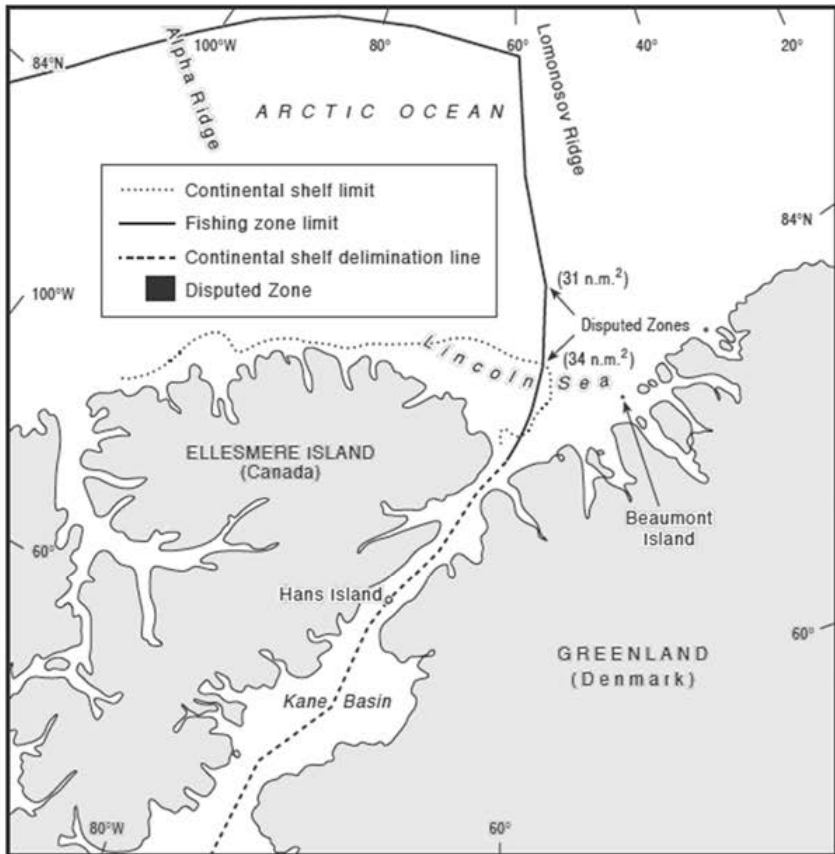
The Dispute

The Lincoln Sea is the portion of the Arctic Ocean located directly to the north of Greenland and Ellesmere Island. The Arctic’s thickest sea ice is found there, pushed into the space between the two land masses and held there for years by prevailing winds and ocean currents. In 1973, the negotiators who delimited the maritime boundary between Canada and Greenland stopped at 82°, thirteen minutes north where Nares Strait opens into the Lincoln Sea. Then, in 1977, Canada claimed a two-hundred-nautical-mile fisheries zone along its Arctic Ocean coastline. The zone was bounded in the east by an equidistance line that used the low-water line of the coasts of Ellesmere Island and Greenland and several fringing islands as base points.⁸⁵

Denmark adopted its own equidistance line three years later but only after drawing straight baselines – two of which used Beaumont Island as a base point.⁸⁶ Beaumont Island is just over ten square kilometres in size and located more than twelve, but less than twenty-four, nautical miles from the Greenland coast. The first of the resulting baselines was 42.6 nautical miles long; the second was 40.9 nautical miles long. The use of straight baselines and Beaumont Island had the effect of pushing the equidistance line slightly westward, adding two lens-shaped areas of thirty-one square nautical miles and thirty-four square nautical miles to the Danish claim.

Canada objected to the Danish straight baselines and particularly the use of Beaumont Island as a base point for four reasons: “Beaumont Island is somewhat west of the other islands, thus it is not part of a fringe of islands; the straight baselines are long; they do not follow the trend of the coast; they do not cross the mouths of the intervening fjords but are farther offshore.”⁸⁷ These reasons seem to be derived from the seminal ICJ

decision on straight baselines, namely the 1951 *Anglo-Norwegian Fisheries Case*.⁸⁸



Map 13-3: Lincoln Sea (from David H. Gray, “Canada’s Unresolved Maritime Boundaries” (1997) 5:3 *IBRU Boundary & Security Bulletin* 61 at 64).

Resolution Efforts

In 1982, Canadian and Danish diplomats met to discuss the Lincoln Sea boundary dispute, “with neither side moving from their respective positions.”⁸⁹ In 2004, the scope of the dispute was reduced when Denmark modified its straight baselines, replacing the 40.9-nautical-mile baseline east of Beaumont Island with a series of shorter baselines, including one that connects Beaumont Island to John Murray Island, the next island in the chain.⁹⁰ The Danish changes reduced the size of the northernmost

disputed area almost to the point of eliminating it, while also strengthening the case for using Beaumont Island as a base point.⁹¹

These developments may have contributed to the announcement by the Canadian and Danish foreign ministers in 2012 that negotiators “have reached a tentative agreement on where to establish the maritime boundary in the Lincoln Sea.”⁹² Apparently, the only issue left for negotiation was a joint management regime for any straddling hydrocarbon deposits. This issue could not be dealt with solely by the Danish and Canadian negotiators, for while Denmark retains control over Greenland’s foreign policy, the Greenland government has, since 2008, exercised control over natural resources, including on the continental shelf.⁹³ However, joint management regimes have become a standard component part of maritime boundary treaties, and there was (and is) no reason to expect problems during the Canada-Greenland negotiations.

Drivers

The Lincoln Sea boundary dispute was of little practical significance for four reasons: (1) the parties agreed that the equidistance principle should be used; (2) the dispute was over a very small area of EEZ; (3) any resources in the disputed zones would have been exceedingly difficult to access and therefore unlikely to become commercially viable; and (4) there was never any difference of opinion over the location where the adjoining Canadian and Danish jurisdictions would meet at two hundred nautical miles from shore, which meant that any dispute with two hundred nautical miles of shore was of little legal relevance to a delimitation of the extended continental shelf beyond two hundred nautical miles. Like the 1973 treaty on the boundary between Canada and Greenland, it seems the main reason for seeking to resolve this dispute was to deal with a situation before any problems arose.

The dispute was of little political significance. From the Canadian perspective, it was located within exclusive federal jurisdiction and in the most remote part of the Arctic, which meant that there was virtually no public knowledge of or engagement on the issue. Finally, the opening of negotiations was related to Canada’s 2010 Arctic Foreign Policy Statement, which expressed an intent to resolve all of the country’s Arctic boundary disputes and not just in the Beaufort Sea where interest in oil and gas was growing.⁹⁴ The negotiations with Denmark and the United States were launched at about the same time,⁹⁵ which suggests that resolving the easier dispute in the Lincoln Sea might have been seen as a way to create some momentum for the more difficult dispute in the Beaufort Sea.

ST. PIERRE AND MIQUELON

The Dispute

St. Pierre and Miquelon is an archipelago of eight islands with a total land mass of 242 square kilometres. Located just thirteen nautical miles from the coast of Newfoundland, the islands were claimed by Jacques Cartier on behalf of France in 1536. The islands changed hands several times during wars between France and Britain but have remained uncontested French territory since 1815. They support a population of around six thousand people with an economy based on fishing and tourism. The dispute over maritime zones around St. Pierre and Miquelon began in 1966 when the Canadian and French governments exchanged diplomatic notes setting out their positions with respect to the delimitation of the continental shelf.⁹⁶ The exchange of views was prompted by both countries granting oil and gas exploration licences in the area.⁹⁷ In 1970, Canada extended its territorial sea from three to twelve nautical miles; one year later, France did the same.

Resolution Efforts

In 1972, the two countries concluded a maritime boundary treaty resolving overlaps within twelve nautical miles of the coasts of Newfoundland, on the one hand, and St. Pierre and Miquelon, on the other.⁹⁸ Canada and France then spent years negotiating over an extension of the boundary out to two hundred nautical miles (that is, the EEZ), before agreeing in 1989 to send the matter to an ad hoc arbitral tribunal.⁹⁹ In 1992, the tribunal issued a highly unusual decision.¹⁰⁰ It awarded France a twenty-four-nautical-mile-wide band around the seaward side of the islands, plus a 10.5-nautical-mile-wide corridor extending 188 nautical miles southwards from the islands. If the corridor was intended to allow France access to its territorial sea and EEZ without having to pass through Canada's EEZ, it failed to accomplish this, since Canada's zone extends farther offshore and therefore around the stem of the mushroom-shaped French zone.

Drivers

Fisheries provided the principal motivation for the negotiations and the eventual recourse to third-party dispute settlement.¹⁰¹ In 1972, Canada and France agreed to phase out fishing by vessels from metropolitan France in Canadian waters in the Gulf of St. Lawrence and to limit, but not phase out completely, fishing by vessels from St. Pierre and Miquelon.¹⁰² French fisherman responded by spending more time in the disputed waters around St. Pierre and Miquelon.¹⁰³ The two countries also

disagreed over the quantities of fish that could be caught sustainably in the area.¹⁰⁴ As McDorman explains,

[w]ith the expansion of French fishing effort in the disputed zone in the early 1980s Canada became increasingly concerned about the health of the fish stocks upon which the fishermen of Newfoundland, Canada's poorest province and a province heavily reliant upon the fishing industry, depend. Couple this with a Canadian confidence of a favourable outcome, and an adjudicated ocean boundary was seen as the final option.¹⁰⁵

McDorman also explains that "Canada had to provide an enticement in order to get the French to agree to adjudicate," in the form of three years of access to 2,950 tonnes of cod in undisputed Canadian waters.¹⁰⁶ The possibility of oil and gas reserves added a further motivation. Hydrocarbons had already been discovered on either side of the disputed zone, and, as mentioned, the two countries had independently issued overlapping exploration licences in the zone itself. As McDorman explains, the potential for hydrocarbons was "of particular interest to France which is overwhelmingly dependent upon imported oil and gas."¹⁰⁷

Norway

NORTH SEA BOUNDARIES

The Disputes

Negotiations between Norway and its maritime neighbours began in the 1960s when the oil and gas potential of the North Sea became apparent. In 1962, Phillips Petroleum, a U.S.-based company, approached the Norwegian government with a request to initiate drilling.¹⁰⁸ The next year, the government issued a royal decree stating that the seabed and subsoil of the submarine areas off the Norwegian coast were under its jurisdiction with regard to natural resources.¹⁰⁹ This move provided an impetus to delimit Norway's maritime boundaries with the United Kingdom and Denmark in areas that were previously high seas. One of the challenges facing Norway concerned the 1958 *Geneva Convention*, the first article of which defines the continental shelf as "the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superadjacent waters admits of the exploitation of the natural resources of the said areas."¹¹⁰ Norway had chosen not to sign the convention because of its wording regarding the two-hundred-metre limit. It was concerned that the United Kingdom and Denmark might argue that the Norwegian shelf was bounded by the Norwegian Trench, which drops to

350 metres just off the west coast of Norway and to 700 metres just off the south coast.¹¹¹

However, it turned out that none of the states around the North Sea wished to base a boundary regime on the two-hundred-metre limit.¹¹² This limit was, of course, rendered conditional and therefore uncertain by the subsequent clause within Article 1, namely “to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas.” Since offshore drilling technology was certain to improve over time, the question became not whether the Norwegian Trench constituted a limiting factor but, rather, whether the equidistance principle or some other criterion would be applied to delimit the opposing continental shelves.

Resolution Efforts

A key development occurred in 1964 when the United Kingdom informed Norway that it wished to start negotiations based on the equidistance principle.¹¹³ Britain wanted an agreement with Norway before dealing with other, more complicated boundary issues further south with Denmark, Germany, the Netherlands, Belgium, and France.¹¹⁴ The offer to use the equidistance principle was a major concession because Britain ratified the *Geneva Convention* that same year. Norway’s response to the British offer was immediate and positive. The Norwegians were also pleased by the willingness of the British negotiators to accept a boundary calculated from straight baselines drawn between outer islands and reefs along Norway’s highly fragmented west coast.¹¹⁵ Those straight baselines had previously been challenged by the United Kingdom before the ICJ, which ruled in Norway’s favour in the 1951 *Anglo-Norwegian Fisheries Case*.¹¹⁶ That said, the United Kingdom benefitted from the fact that the Shetland and Orkney Islands were likewise granted full effect with regard to the calculation of the equidistance line. The agreement between Norway and the United Kingdom was concluded in 1965, just one year after the negotiations began.¹¹⁷

The negotiations with Denmark were more difficult. Denmark had ratified the *Geneva Convention* in 1963¹¹⁸ and could have been expected to argue that Norway’s continental shelf was bounded by the Norwegian Trench, the deepest part of which lies between Norway and Denmark. However, Denmark had a strong interest in seeing the equidistance principle applied to the south to define its boundary with West Germany. It was West Germany’s position that the location of the boundary should not be based on a simple application of the equidistance principle but should instead take into account the length of its coastline.¹¹⁹ The West Germans took this position because the German coast of the North Sea is

concave in shape, while the Danish and Dutch coasts on either side are convex.

Denmark would have also been aware that an argument based on coastal length was likewise available to Norway since the length of the Norwegian coast facing Denmark greatly exceeds the length of the Danish coast facing Norway. Accepting the application of the equidistance principle with Norway enabled Denmark to be consistent in its legal arguments and to avoid the worst-case scenario of having to make concessions based on coastal length in both the south and the north. Norway and Denmark concluded their boundary agreement in 1965.¹²⁰ Denmark was also interested in a quick settlement of the boundary with Norway so that oil exploration in the northern portion of its North Sea continental shelf could begin.¹²¹ Oil exploration in the southern portion was forced to wait, however, because West Germany was unwilling to make any concessions with regard to its legal position. West Germany, Denmark, and the Netherlands eventually agreed to send the matter to the ICJ, which, in 1969, ruled largely in favour of West Germany.¹²²

The Norway-Denmark boundary agreement was a win-win result for both countries. Denmark was able to secure a straightforward application of the equidistance principle in the north before being forced to accept qualifications to that principle in the south. Norway avoided any challenge to its position that might have been based on the *Geneva Convention* and gained jurisdiction over a portion of the North Sea equal in size to its entire land mass.¹²³ The quick resolution of the dispute enabled both countries to open their respective portions of the previously disputed area to oil and gas exploration. Having agreed to a straightforward application of the equidistance principle in 1965, Norway and Denmark had no difficulty agreeing to do so again when, in 1979, they settled the boundary between Norway and the Faroe Islands.¹²⁴

Drivers

In 1965, the maximum breadth of coastal state jurisdiction over the continental shelf was not yet clearly defined. The 1958 *Geneva Convention* was unclear on the point, containing both a depth-based limitation of two hundred metres and a technology-based limitation that would allow ever-expanding claims as offshore drilling technology improved.¹²⁵ Norway seized the moment to conclude maritime boundary agreements with the United Kingdom and Denmark that took the most expansive possible view of the international law, dividing large portions of the North Sea between them using the equidistance principle. Other countries could have challenged these actions, but they would have been arguing not for their own rights but, rather, for the rights of all states to access the areas

in question. Moreover, most of those areas were in deep water, beyond the reach of the drilling technologies of the time. For these reasons, the Norway-UK and Norway-Denmark boundary treaties went unchallenged and, with time, became unopposable by other states. Norway's new boundaries were reinforced when international oil companies began drilling under leases granted by the Norwegian government.¹²⁶ Given the balance of power in international politics at the time, it was likely to Norway's advantage that most of the oil companies involved were American.¹²⁷

JAN MAYEN BOUNDARIES

The Disputes

Jan Mayen is a small island located roughly 250 nautical miles east of Greenland and 360 nautical miles northeast of Iceland. It has been part of Norway since 1930. There is no permanent population on Jan Mayen, but the EEZ around the island supports a sizeable fishery. In June 1979, Iceland adopted an EEZ of two hundred nautical miles, just as Norway had done along the coast of its mainland three years earlier.¹²⁸ The new Icelandic zone came within two hundred nautical miles of Jan Mayen, and so Norway responded by declaring its own two-hundred-nautical-mile EEZ around the island, creating an overlap.¹²⁹ Norway then took the view, consistent with its approach to other maritime boundaries, that the equidistance principle was an appropriate solution. Iceland, in contrast, took the view that it should have a higher proportion of the disputed zone, given that the rights of the two states were generated by a small, remote, and uninhabited island, on the one hand, and a significantly larger, populated island country, on the other.¹³⁰

A second boundary dispute was created in 1980 when Denmark extended its two-hundred-mile fisheries zone northwards along Greenland's east coast, creating an overlap with the Norwegian zone on the northwest side of Jan Mayen.¹³¹ Denmark argued that it deserved a larger proportion of this second disputed zone because Greenland's coast is much longer than Jan Mayen's and because the population of Greenland, living much closer to the area, deserved privileged access to fish stocks located there.¹³² Norway held firm to the equidistance principle, and, after years of unsuccessful negotiations, Denmark submitted the dispute to the ICJ in 1988.¹³³

Resolution Efforts

The dispute between Norway and Iceland was resolved through a conciliation committee consisting of three members: one from Norway, one from Iceland, and one from the United States as the neutral third

member.¹³⁴ An agreement was signed in 1981 whereby the Icelandic continental shelf was recognized as extending a full two hundred nautical miles from the Icelandic coast in the area between Jan Mayen and Iceland, notwithstanding the proximity of the Norwegian island.¹³⁵ Iceland thus gained a much larger continental shelf than it would have had under the equidistance principle. At the same time, a resource-sharing regime was incorporated into the new boundary agreement. Norway gained the right to participate in 25 percent of the oil and gas exploration on a portion of Iceland's continental shelf just south of the new boundary, while Iceland gained the right to participate in 25 percent of the oil and gas exploration on a portion of Jan Mayen's continental shelf just north of the new boundary.¹³⁶

As for the Norway-Denmark dispute, the ICJ delimited a single maritime boundary between Greenland and Jan Mayen in 1993.¹³⁷ The court began with an equidistance line on a provisional basis and then considered whether "special circumstances" justified any adjustments in order to achieve an "equitable result." The court concluded that the longer length of the Greenland coast required a delimitation that tracked closer to Jan Mayen and that the line should also be shifted somewhat eastwards to allow Denmark equitable access to fish stocks. Norway and Denmark implemented the judgment through a boundary treaty concluded in 1995.¹³⁸

Drivers

Norway's willingness to concede to Iceland's position was based on several political and economic considerations. First, insisting on the equidistance principle in the context of a small, remote, and unpopulated island would have damaged relations between Norway and its smaller Nordic cousin.¹³⁹ Second, Norway had already discovered large oil fields in the North Sea, while Iceland had no equivalent resources.¹⁴⁰ Third, the most promising oil and gas prospects between Iceland and Jan Mayen were located close to the smaller island, in an area that Norway received despite its concession.¹⁴¹ Just in case, the Norwegians made sure that the boundary treaty provided them with a 25 percent share of oil and gas development on the Icelandic side.¹⁴² They also insisted that the waiver of the equidistance principle was not a precedent for other negotiations.¹⁴³ The dispute has also been connected to larger considerations regarding membership in the North Atlantic Treaty Organization (NATO) and anti-NATO sentiment in Iceland at the time.¹⁴⁴

In 2008, as the prospect of actual oil and gas activity came into view, Norway and Iceland concluded a follow-up treaty providing a more detailed framework for cooperative exploration of straddling deposits¹⁴⁵

and deposits within the two zones of 25 percent participation.¹⁴⁶ According to Norwegian Foreign Minister Jonas Gahr Støre, the arrangement provided the predictability that the oil companies needed.¹⁴⁷ This joint hydrocarbon regime, although not unprecedented,¹⁴⁸ was the first to be established in Arctic waters. Regardless of these developments, conditions around Jan Mayen are relatively inhospitable for petroleum development, with difficult ice conditions and deep water.¹⁴⁹

Fisheries interests played a role in both disputes, though the interests were mostly on the side of Norway's negotiating partners. To some degree, this was recognized in the ICJ's judgement, which adjusted the Norway-Denmark boundary to accommodate Greenland's interest in a potential capelin fishery.¹⁵⁰ As for the Norway-Iceland boundary, Icelandic fishermen had been pursuing capelin southeast of Jan Mayen for some time, while Norwegian fishing in the disputed zone had only just begun.¹⁵¹

BARENTS SEA BOUNDARY

The Dispute

The Barents Sea lies north of Norway's Finnmark region and Russia's Kola Peninsula and between Norway's Svalbard archipelago to the northwest and two of Russia's archipelagos – Franz Josef Land and Novaya Zemlya – to the northeast and east. Roughly five hundred thousand square nautical miles in size, it has an average depth of only 230 metres. The entire seabed constitutes a continental shelf, making the Barents Sea a prime location for fish, oil, and gas. For more than three decades, Oslo and Moscow have contested roughly fifty thousand square nautical miles or about 10 percent of the Barents Sea. Moscow has argued that a number of "special circumstances" were relevant to the boundary delimitation: the length and shape of Russia's coast; the size of the respective populations in the adjacent areas; ice conditions; fishing, shipping, and other economic interests; and strategic concerns. It also argued that the 1920 *Svalbard Treaty* prevented any points on that archipelago from influencing the delimitation.¹⁵² In Moscow's view, all of these factors combined to justify a sector line along the 32° 04 minutes, 35 seconds east meridian, with that line being adjusted east of Svalbard only, so as not to infringe on the area defined under the *Svalbard Treaty*.¹⁵³

Oslo responded that the Soviet Union had drawn the sector line in 1926 for the sole purpose of defining the territorial status of several offshore islands, without any intention of delimiting maritime zones. It argued that a median line should instead be drawn from the mouth of the Varangerfjord, a narrow inlet between Finnmark and the Kola Peninsula, within which a territorial sea boundary had been agreed in 1957.¹⁵⁴ Such

a line would be equidistant, at all points, from the Norwegian and Soviet mainland coasts; further out, it would be equidistant from Svalbard in the west and Novaya Zemlya and Franz Josef Land in the east.¹⁵⁵

The dispute arose in the 1960s when Norway and the Soviet Union both relied on the 1958 *Geneva Convention* to claim offshore rights.¹⁵⁶ It acquired greater consequence in 1977 when the two countries asserted two-hundred-nautical-mile EEZs encompassing both fish and seabed resources.¹⁵⁷ Then, in 1996 and 1997 respectively, Norway and Russia ratified *UNCLOS*, Article 76 of which recognizes that a coastal state may exercise sovereign rights over an extended continental shelf more than two hundred nautical miles from shore, if and where it can demonstrate a “natural prolongation” of its land mass.¹⁵⁸ However, Article 83 of *UNCLOS* also stipulates that a continental shelf delimitation between states with opposite or adjacent coasts “shall be affected by agreement on the basis of international law ... in order to achieve an equitable solution.” The same stipulation is made in Article 74, which deals with the delimitation of overlapping EEZs. As a result of *UNCLOS*, the Barents Sea boundary dispute expanded in scope, providing more room for compromise and mutual benefit.

Resolution Efforts

Negotiations over the Barents Sea boundary stretched over four decades, after being formally launched in 1974.¹⁵⁹ The talks gained momentum in 1988 when a provisional line between the two positions was drawn and Soviet Prime Minister Nikolai Ryzhkov announced that a settlement was possible – if agreement could be reached on the joint exploitation of resources in the disputed area.¹⁶⁰ The talks, however, came to a standstill after the Soviet Union collapsed. Norway was also unrelenting in its demand for a settled boundary before any shared resource scheme was implemented.

In 2005, Russian President Vladimir Putin and Norwegian Prime Minister Kjell Magne Bondevik announced that Norway and Russia would initiate “strategic cooperation” on petroleum development in the Barents Sea.¹⁶¹ Negotiations on the boundary dispute were resumed later that year. In 2007, the two countries signed a revision of the 1957 agreement on the boundary within the Varangerfjord.¹⁶² The revision, which provided a clear starting point for the boundary farther out, was an essential step for the complete resolution of the dispute.¹⁶³

The breakthrough on the rest of the boundary came in 2010 when the two countries committed to an all-purpose boundary that would be drawn “on the basis of international law in order to achieve an equitable solution,” recognizing “relevant factors ...including the effect of major

disparities in respective coastal lengths” while dividing “the overall disputed area in two parts of approximately the same size.”¹⁶⁴ The resulting treaty, with geodetic lines connecting eight defined points, was ratified by the Norwegian and Russian governments after the Norwegian Storting and the Russian Duma gave consent in 2011.¹⁶⁵

The treaty sets a single “multi-purpose” maritime boundary as it delineates both the EEZ and continental shelf within two hundred nautical miles from shore and for the extended continental shelf beyond that. It is a question of only limited interest as to “whether the agreed boundary is best described as a modified median line (as argued by Norway) or a modified sector line (as argued by Russia),”¹⁶⁶ since the treaty divides the previously disputed sector almost exactly in half. The treaty also includes provisions on the co-management of any hydrocarbons that straddle the boundary through the conclusion of a “unitization agreement” for the exploitation of any such deposit and on the access of private companies to drilling rights on either side of the boundary.¹⁶⁷



Map 13-4: Norway-Russia Maritime Boundary in the Barents Sea (“Norway and Russia Sign Treaty to End Boundary Dispute in Barents Sea,” *Eye on the Arctic*.¹⁶⁸)

Drivers

The settlement of the dispute was due to several factors, of which the potential for oil and gas is most frequently cited.¹⁶⁹ In 1975, the two countries agreed on a moratorium on oil and gas exploitation in the area.¹⁷⁰ Notwithstanding the moratorium, some seismic surveying did take place in the disputed zone on the Russian side,¹⁷¹ while exploratory wells were drilled – and oil and gas discovered – in the undisputed waters on either side. However, low prices and high costs combined to restrain development until the 2000s, when several large projects were realized. On the Norwegian side, the Snøhvit gas field and the Goliat oil field came on stream in 2006 and 2016, respectively.

There has been less activity on the Russian side, as there are more easily accessible resources either onshore or closer to shore in the Yamal/Nenets region further east.¹⁷² However, both sides of the Barents Sea are thought to contain considerable hydrocarbon reserves.¹⁷³ Moreover, ice-free conditions, a relatively hospitable climate (compared with other offshore parts of the Arctic at similar latitudes), and relatively good coastal infrastructure (especially compared to the North American Arctic) make the Barents Sea attractive for oil companies.¹⁷⁴

In 1988, the massive Shtokman gas field was discovered on the Russian side of the Barents Sea. In 2007, Gazprom entered into a consortium with Norway's Statoil (then StatoilHydro) and France's Total to develop the field. In 2012, technical problems, disagreements among the partners, and declining prices (especially in the United States, due to the fracking revolution) led to the project being shelved.¹⁷⁵ The development phases of the Shtokman field correlated with the signing of the 2007 *Varangerfjord Agreement* and provided impetus for the 2010 *Boundary Treaty*.¹⁷⁶

Since 2010, petroleum-related cooperation between Norway and Russia has expanded. The Russian company Lukoil applied to operate on the Norwegian continental shelf, acquiring initial approval in 2011. It has since gained stakes in a number of licences in the Norwegian portion of the Barents Sea, mostly near the boundary with Russia.¹⁷⁷ In addition to oil and gas, fisheries have long been at the forefront of the cooperative maritime relationship between Norway and Russia.¹⁷⁸ The Barents Sea contains the world's largest cod fishery.¹⁷⁹ Effective management cooperation has, over the last decade, enabled Norway and Russia to increase their science-based quotas – to the point where the cod stock provides more than USD \$2 billion in sustainable annual catches.¹⁸⁰ However, fisheries did not act as an incentive for the conclusion of the boundary treaty in 2010.¹⁸¹ As explained by Geir Hønneland, some Russian fishermen instead voiced concern that a clear delineation would

deny access to some historically important fishing grounds.¹⁸² After the agreement was signed in 2010, critical voices at the local level in northwest Russia have continued to question the wisdom of the decision. So far, however, both countries have enforced the treaty through their respective coast guards¹⁸³ as well as initiating discussion on unitization in the case of any discovery of transboundary hydrocarbons.¹⁸⁴

Beyond economic interests, Arild Moe, Daniel Fjærtøft, and Indra Øverland argue that Russia's desire to affirm the primacy of the *UNCLOS* regime and "tidy up its spatial fringes" are additional factors explaining the 2010 settlement.¹⁸⁵ Indeed, Russia benefits enormously from the right that every state has to an EEZ because of its extremely long coastline. And the shallow nature of the Arctic Ocean means that it will also benefit from the *UNCLOS* rules on extended continental shelves, perhaps more than any other country. Eliminating the legal and political uncertainties associated with unresolved maritime boundary disputes is one way of securing these benefits.¹⁸⁶ Finally, Russia's interest in resolving its disputes, and thus strengthening the *UNCLOS* regime, may have been influenced by the fact that non-Arctic countries are effectively excluded from the Arctic's vast continental shelves as a result of these rules. In both Russia and Norway, a newfound emphasis on Arctic affairs, as well as a desire to reaffirm the Arctic maritime legal regime (*UNCLOS*), has acted as an additional driver of dispute settlement. We will return to this point in the second part of this article.

SVALBARD-GREENLAND BOUNDARY

The Dispute

Svalbard is located less than four hundred nautical miles from Greenland, and both Norway and Denmark claim two-hundred-nautical-mile EEZs around their respective islands. The resulting overlap came to approximately forty-four thousand square nautical miles.¹⁸⁷ Norway's sovereignty over the Svalbard archipelago was recognized by the *Svalbard Treaty*, which was adopted as part of the Paris Peace Accords at Versailles in 1920.¹⁸⁸ The treaty, which is open to all states, gives the citizens of its parties the right to economic access to the islands – subject to Norway's right to regulate activity on a non-discriminatory basis and to raise taxes for the purposes of providing services and infrastructure. In 1977, Norway claimed a two-hundred-nautical-mile fisheries protection zone around Svalbard and argued that this zone is not covered by the treaty because this innovation in maritime law did not exist in 1920.¹⁸⁹ The fisheries protection zone is important to Norway because the shallow waters around Svalbard serve as a nursery for large numbers of juvenile Atlantic cod.¹⁹⁰

To avoid escalating a dispute with other countries over the scope of the treaty and the possible rights of access to offshore oil and gas resources, Norway has not claimed an EEZ around Svalbard.¹⁹¹ However, under international law, a state does not need to claim a continental shelf, which is automatically generated by the adjoining territory.¹⁹² Norway claims that Svalbard does not have a continental shelf in its own right and that the continental shelf around Svalbard is solely under Norwegian jurisdiction as an extension of the mainland's continental shelf. Although other countries dispute this,¹⁹³ the Norwegian view received some support from the Commission on the Limits of the Continental Shelf, which, in 2009, issued recommendations that recognized the existence of a Norwegian extended continental shelf to the north of Svalbard.¹⁹⁴ In 2015, the Norwegian government launched a licensing round for oil and gas exploration and production that included blocks on what would, otherwise, be Svalbard's continental shelf. Russia delivered a diplomatic protest, and, so far, no activity has commenced in those blocks.¹⁹⁵

Resolution Efforts

Norway drew straight baselines around Svalbard in 2001, while Denmark drew straight baselines around Greenland in 2004.¹⁹⁶ Then, in 2006, Norway and Denmark concluded an all-purpose maritime boundary between Svalbard and Greenland.¹⁹⁷ Roughly 430 nautical miles long, the boundary is based on an equidistance line, adjusted slightly to take into account the presence of Denmark's Tobias Island some thirty-eight nautical miles off the Greenland coast.¹⁹⁸ By concluding the treaty, Denmark implicitly recognized that Svalbard generates both fishing and continental shelf rights. The treaty includes a provision on straddling mineral deposits, whereby either party can initiate negotiations on possible cooperative solutions without committing the two parties to any result. The preamble of the *Svalbard-Greenland Delimitation Agreement* also points out that the treaty does not set the boundary between their respective extended continental shelves – a matter that the parties will have to address at some future point.¹⁹⁹

Drivers

Economic interests seem to have provided some motivation for the Norway-Denmark negotiations. Oude Elferink explains how the 2006 treaty's provisions on straddling mineral deposits are based on the 1995 treaty on the boundary between Jan Mayen and Greenland, while going into more detail with regard to how exploitation would occur.²⁰⁰ The inclusion of these detailed provisions anticipates oil and gas activity along the new boundary at some point.

For Norway, another clear goal was the acquisition of international recognition for its position on the fishing zone and continental shelf around Svalbard. Although some argue that Norway abandoned its policy of equidistance when settling its boundaries with Greenland and Russia,²⁰¹ by doing so, it succeeded in removing two potential causes of further debate and discord over Svalbard. The status of the waters and seabed around the archipelago is not yet fully settled, but Norway's position is stronger now than it was before.

Two Approaches to Maritime Boundary Disputes?

This article addresses the question: why does Canada have so many unresolved maritime boundary disputes, at least in comparison to Norway? Does the Canadian government take a different approach to disputed maritime boundaries, or are each of Canada's unresolved disputes just unusually difficult because of factors specific to each of them? This analytical section reviews the factors that contributed to the settlement of Norway's disputes, before considering the possible reasons why individual Canadian disputes have remained unresolved. Table 1 provides a starting point for the analysis.

Table 1: Overview of Norway's maritime boundaries

Dispute	Status	Drivers	Barriers
North Sea boundaries	* agreement with the United Kingdom in 1965* agreement with Denmark in 1965* agreement with Denmark (on Faroe Islands) in 1979	* potential hydrocarbons* existing fisheries* legal strategy (locking in gains provided by new developments in international law)	* legal uncertainty* concerns about precedent/position elsewhere
Jan Mayen boundaries	* agreement with Iceland in 1981, revised in 2008* agreement with Denmark in 1995, after ICJ decision in 1993	* existing and potential fisheries* potential hydrocarbons* positive relations among Nordic nations	* limited

Dispute	Status	Drivers	Barriers
Barents Sea boundary	* agreement with Russia in 2010	* potential hydrocarbons* reducing risk of armed conflict* potential geo-political value of resolution and support of <i>UNCLOS</i> regime (e.g., solidifying position of Arctic versus non-Arctic states)	* regional interests (Russian fishermen concerned about loss of potentially valuable resources)
Svalbard-Greenland boundary	* agreement with Denmark in 2006	* potential hydrocarbons* securing some international recognition of claims around Svalbard	* limited

NORWAY

From the 1960s onwards, successive Norwegian governments maintained a policy of actively seeking to resolve maritime boundary disputes. This policy was the result of several factors. The first, identified by Bernard Oxman with regard to boundaries worldwide, is “the desire to ‘consolidate’ coastal state jurisdiction newly acquired under international law,” which “appears to be particularly true in enclosed and semi-enclosed seas where the peaceful enjoyment of extended maritime jurisdiction is especially dependent upon arrangements with one’s neighbors.”²⁰² In the North Sea, Norway sought rapid settlements with the United Kingdom and Denmark after the *Geneva Convention* and parallel developments in state practice made it possible to credibly claim a two-hundred-nautical-mile continental shelf.²⁰³ In addition to consolidating new rules on coastal jurisdiction that favoured their interests, the three states were keen to apply the equidistance method.²⁰⁴ Denmark, in particular, saw strategic legal value in supporting equidistance as a principle of international law. As Oxman explained,

[o]thers [states] may wish to use one or more agreements to influence an outstanding delimitation either directly or indirectly. The classic example of this approach is the equidistant

line drawn by Denmark and the Netherlands as part of a more general implementation of the equidistance principle in Article 6 of the Convention on the Continental Shelf in the North Sea that included, in addition to these two states, Norway and the United Kingdom. It represented not only an attempt to reinforce the use of equidistance in the North Sea but, by extending the line to a point equidistant from their coasts and the German coast, an effort to apply equidistance directly to their respective boundaries with Germany.²⁰⁵

Norway and the United Kingdom also benefitted from the equidistance principle, which was relatively easy to apply and gave each country vast, uncontested, and potentially oil- and gas-rich portions of the continental shelf.

It is also possible that Norway was thinking strategically beyond the North Sea to its contested Barents Sea boundary with the Soviet Union. Since Norway's position in the Barents Sea was based upon equidistance, any new state practice in favour of that principle in the North Sea could be seen as bolstering its claim in the High North. In any event, a more general desire to consolidate rights was apparent in the Barents Sea, where economic interests combined with security interests to motivate the negotiation of a clearly defined boundary with the Soviet Union and later Russia. Norway first requested negotiations on the boundary in 1967.²⁰⁶ In 1974, Norway and the Soviet Union agreed on a joint framework to manage both potential hydrocarbons (through a moratorium) and shared fish stocks in the disputed zone. The latter were managed through the "Grey Zone Agreement," which was signed in 1978 and renewed annually until 2010.²⁰⁷ The adoption of the *Barents Sea Boundary Treaty* that year was the result of more than four decades of continuous effort by Norwegian diplomats. Significantly, Norway had long been willing to compromise to find a solution.²⁰⁸ The challenge was to persuade the Soviet Union and later Russia to engage and likewise compromise on the matter.²⁰⁹

Economic interests have long been a factor in Norway's efforts to resolve boundary disputes. The negotiations with the United Kingdom and Denmark began after it became clear that Norway had substantial hydrocarbon potential in the North Sea. The motivation provided by economic interests was powerful enough to overcome concerns about a lack of knowledge as to where, exactly, the resources were located. Although this uncertainty loomed large in the negotiations,²¹⁰ an influx of foreign companies and the prospect of win-win outcomes carried the negotiations forward.²¹¹ Economic interests in both hydrocarbons and fish

also motivated Norway's decades-long effort to resolve the Barents Sea boundary dispute.

However, economic interests do not fully account for Norway's policy of actively seeking to resolve boundary disputes. Instead, the policy is the result of economic incentives aligning with more general foreign policy goals, namely safeguarding Norwegian sovereignty and ensuring stability in regional relations. Norway, as a relatively small state, has long pursued stable relations with its neighbours that are governed by international law and institutions.²¹² This general policy was motivated by the experiences of the First World War and, especially, the Second World War, when neutral Norway was occupied by Germany.²¹³ Norway's geographic proximity to the Soviet Union, which made it vulnerable during the Cold War, further contributed to defining foreign policy goals of stability and conflict avoidance.²¹⁴ Proactively settling maritime boundaries is more than a technical, legal, or economic issue for Norway; it is a core element of the country's foreign policy.

Maritime space has similarly been a constitutive part of the modern Norwegian state. For a country with maritime zones seven times the size of its land mass, the ocean has been and remains integral to economic and security interests. Providing stable legal frameworks for the exploitation of marine resources and maintenance of national sovereignty has thus been a priority for successive Norwegian governments.²¹⁵ In the post-Cold War era, a renewed interest in Arctic affairs also played a role, especially in the resolution of the Barents Sea boundary dispute. This renewed interest can be traced to the "Red-Green" coalition,²¹⁶ which took office in 2005 shortly after the publication of several reports that highlighted the economic potential of the Barents Sea.²¹⁷ These studies were driven by the oil and gas industry, which was shifting its attention northwards as fields in the North Sea became depleted.²¹⁸

The renewed interest in Arctic affairs was also linked to developments in the Norway-Russia relationship, including the abduction of two Norwegian fisheries inspectors when they boarded the Russian trawler *Elektron* in the fisheries protection zone around Svalbard in 2005.²¹⁹ The new interest in the Arctic was thus coupled with a long-standing policy of pragmatic cooperation with Russia on transboundary issues ranging from fish stocks, to migration, to trade.²²⁰ Norway began putting more effort into the bilateral relationship, concentrating on environmental management and people-to-people cooperation on a local and regional level.²²¹

These factors placed the ongoing Norwegian effort to settle the Barents Sea boundary dispute in a larger and essentially positive foreign policy

context. However, the final step towards the 2010 treaty was Russia's decision to work with Norway in finding a solution. Although it is not the purpose of this article to examine Russia's motivations,²²² this country reinvigorated its Arctic policy in 2004-05.²²³ This new political and strategic orientation correlated with economic interests, especially in offshore oil and gas. It thus became more important for Russia to "tidy up its spatial fringes," as Moe, Fjærtøft, and Øverland have argued.²²⁴

Finally, it is noteworthy that Norway was willing to depart from equidistance in the negotiation of individual boundaries, while maintaining its commitment to the principle more generally. The Jan Mayen-Iceland boundary provides one example of this, with concessions being made with respect to Iceland's dependence on fisheries and Norway's positive disposition towards its smaller Nordic neighbour.²²⁵ When similar arguments were raised by Denmark concerning the Jan Mayen-Greenland boundary, Norway was unrelenting until the ICJ delimited the boundary in 1993. These were calculated moves that allowed Norway to settle individual disputes amicably while preserving its general negotiating position in favour of equidistance, including, most importantly, in the Barents Sea. At the same time, Norway made repeated use of hydrocarbon cooperation regimes, in the Iceland-Jan Mayen, Greenland-Svalbard, and Barents Sea boundary treaties. These arrangements differ in their detail, but they all intended to overcome a barrier of uncertainty – that is, the unwillingness of states to settle boundaries because of concern that they might surrender access to still-undiscovered seabed resources.

In sum, Norway's policy of actively seeking to resolve maritime boundary disputes can be explained by its desire to (1) "lock in" gains that followed the development of new rules of international law; (2) support the equidistance principle through state practice in an effort to strengthen its legal position with regard to still-unresolved disputes elsewhere; (3) avoid tensions and obtain legal certainty over readily exploitable resources; (4) promote its larger foreign policy goals of stability and security obtained through international law and other forms of cooperation, especially *vis-à-vis* the Soviet Union and later Russia; and, more recently, (5) promote stability, security, and economic development in the Arctic through dispute resolution and enhanced cooperation.

CANADA

Unlike Norway, most of Canada's maritime boundary disputes remain unresolved or are only partially resolved. Is this because of an absence – or insufficiency – of factors favouring negotiation and settlement? Are there factors present, specific to each individual dispute, that disfavour

negotiation and settlement? Currently, there are few economic incentives for settling Canada’s unresolved boundary disputes. In the cases of the Lincoln Sea, Machias Seal Island, and seaward of Juan de Fuca Strait, the resources located within the disputed zones are speculative, commercially unviable, or relatively small in size. In the Beaufort Sea, there is considerable hydrocarbon potential, but it has not been realized due to high operating costs and the availability of comparable resources elsewhere. In Dixon Entrance, Canada and the United States have worked out an arrangement allowing fishermen from each side to access the disputed zone subject to flag state enforcement.

Table 2: Overview of Canada’s maritime boundaries

Dispute	Status	Drivers	Barriers
Gulf of Maine	* ICJ judgement in 1984, mostly settled	* existing fisheries, with potential for some conflict* potential hydrocarbons	* public opinion* zero-sum result
Machias Seal Island (and surrounding waters)	* unresolved	* limited	* zero-sum result* local fisheries interests* regional interests (island part of province of New Brunswick or state of Maine)* dispute over land as well as maritime zones
Beaufort Sea	* unresolved (negotiations in 2010-11)	* potential hydrocarbons* regional interests in economic development	* public opinion* low oil prices* domestic law (<i>Inuvialuit Final Agreement</i>)* concerns about precedent/position elsewhere* zero-

Dispute	Status	Drivers	Barriers
			sum result (at least until 2010)
Dixon Entrance	* unresolved	* existing fisheries	* security (access to submarine-testing facility)* public opinion* zero-sum result* regional interests
Seaward of Strait of Juan de Fuca	* unresolved	* existing fisheries	* low importance* zero-sum result* concerns about precedent/position elsewhere* some regional interests
1973 Canada-Greenland Boundary Treaty	* resolved in 1973 (except for Hans Island)	* existing and potential fisheries* potential hydrocarbons* symbolic resolution	* limited
Lincoln Sea	* tentative agreement in 2012	* symbolic resolution	* regional interests
St. Pierre and Miquelon	* resolved through arbitration in 1992	* existing fisheries* potential hydrocarbons	* public opinion* regional interests* zero-sum result

Significantly, while negotiations on the Beaufort Sea boundary were initiated after oil prices rose in the 2000s, they were suspended when prices fell. In the Gulf of Maine and around St. Pierre and Miquelon, relatively high levels of economic activity and the potential for a “cod war” scenario involving repeated and reciprocal arrests of fishing boats eventually pushed the disputing parties into adjudication and arbitration.

Sometimes, the absence of economic interests may facilitate an agreement, as Bernard Oxman explains about the United States' success in settling maritime boundary disputes far from home: "The most obvious explanation is that it is easiest to reach agreement in the case of small islands surrounded by the deep waters of the Caribbean Sea or the Pacific Ocean where the boundary regions are unlikely to contain hydrocarbons or localized fisheries."²²⁶ In Canada, the same factor may have contributed to the conclusion of the tentative agreement in the Lincoln Sea, where the area in dispute was small and the prospect of economic activity was very low.

In the Beaufort Sea, uncertainty about the existence and location of hydrocarbons played a role. After initiating boundary negotiations with the United States in 2010, uncertainty concerning the existence and location of hydrocarbons seems to have contributed to the suspension of the talks. An effort was made to resolve the uncertainty through seismic mapping of the disputed zone, but the resulting delay coincided with a change of Canadian foreign ministers and a sharp drop in world oil prices. Compare this with Norway, which was willing to concede a large area of contested seabed to Iceland because it knew that the greatest potential for oil and gas lay close to Jan Mayen. However, uncertainty is not an absolute barrier to a boundary agreement. In the North Sea in the 1960s, Norway, Denmark, and the United Kingdom decided that the cost of leaving boundaries unresolved was higher than any potential losses resulting from uncertainty.

Maritime boundary disputes do not automatically catch the attention of government ministers. However, as Oxman explains, "[t]here is no doubt that political factors influence whether, and if so when, a maritime boundary is negotiated or submitted to a tribunal for determination."²²⁷ In 2005 and again in 2008, Canadian Prime Minister Stephen Harper put Arctic sovereignty at the centre of his election strategy and, by doing so, put the Beaufort Sea boundary back on the foreign policy agenda. However, Harper's political focus on the Arctic may have become a double-edged sword with regard to dispute settlement, in that his strong rhetoric contributed to what has been called "sovereignty anxiety" – the idea that Canada is struggling to uphold its sovereignty in the Arctic and is thus prone to security threats in the region.²²⁸ This anxiety, in turn, would have made it politically more difficult to make concessions as part of a boundary settlement, especially when the United States is the negotiating partner.²²⁹

The sensitivity of Canadians to the power differential with the United States should not be underestimated. Many of the great political debates

of Canadian history have involved proposals to tie Canada more tightly to its southern neighbour, whether through trade and investment agreements, improved access for U.S. cultural industries, or closer military cooperation.²³⁰ Norwegian concerns about Russia are of a different character. This insight adds another layer to our understanding of Canada's approach to boundary disputes. On the one hand, Canada initiated negotiations with the United States on the Beaufort Sea in order to achieve legal certainty over potential resources and in circumstances where the expansion of the dispute into the extended continental shelf had created the possibility of a win-win outcome. On the other hand, settling a boundary dispute requires that both sides surrender at least some of the seabed and water column within their previous claimed "sovereignty." If the dispute in question has not been politicized, governments can come to a settlement, as Canada and Denmark did in 1973. However, once a dispute has become politicized, any resolution of the dispute carries domestic political risk. Indeed, even undertaking negotiations may carry risk, which explains why government officials often refer to negotiations as "discussions."

An alternative view is that settling boundary disputes can reinforce sovereignty by removing sources of tension and potential conflict. This seems to have been Norway's view in the Barents Sea, where the 2010 treaty removed a source of tension and potential conflict with Russia. Any conflict with Russia would necessarily threaten Norwegian sovereignty, given the power disparity between the two countries. Canada's relationship with the United States involves a similar power disparity but is otherwise quite different. Canada and the United States are partners in NATO and the North American Aerospace Defence Command and share a common energy market under the *North American Free Trade Agreement*.²³¹ This greatly reduces the stakes involved in their boundary disputes and creates the sense that these disputes are "manageable" – in other words, there is no security or political imperative for them to be resolved. As McDorman explains, "the allocation of government resources, both human and political, inevitably flows to the immediate and urgent" – even if it would be logical to resolve boundary disputes in the absence of "immediate friction."²³² When economic interests require a settlement, as occurred in the Gulf of Maine and around St. Pierre and Miquelon, Canada does find its way to a boundary resolution – in both cases, by outsourcing the actual drawing of the line to objective and disinterested third parties.

Why Is Canada Different?

Our comparison of Canada's and Norway's maritime boundary disputes reveals some similarities. Both countries actively sought resolution of their disputes after international law changed in favour of coastal states in the 1950s, 1960s, and 1970s. Norway was successful in regard to all of its significant disputes, except the one with Russia. Canada settled the boundary between its Arctic islands and Greenland in 1973 and sought a "package deal" with the United States in 1977. When the offer of a package deal was rejected, Canada and the United States sent the Gulf of Maine dispute to adjudication. Beginning in 2005 and 2006, Canada and Norway began paying more attention to the Arctic. Norway settled its remaining dispute with Denmark in 2006 and its dispute with Russia in 2010. Canada initiated negotiations on the Beaufort Sea with the United States in 2010 and announced a tentative agreement on the Lincoln Sea with Denmark in 2012.

Another similarity concerns the fact that, for Canada in the Beaufort Sea and Norway in the Barents Sea, the ability to achieve a settlement was highly contingent on the preferences of a more powerful neighbour. The Barents Sea dispute was resolved when Russia became willing to make concessions – motivated, perhaps, by a desire to achieve legal certainty with regard to oil and gas and to reinforce the already very profitable co-management of the cod fishery. The United States has shown no comparable willingness to compromise because its economic interests were less engaged and perhaps because of a concern that moving away from equidistance in the Beaufort Sea would weaken its legal position in Dixon Entrance, seaward of Juan de Fuca Strait, and elsewhere in the world.

However, the Norwegian and Canadian contexts are quite different from one another. Norway sought to secure its sovereignty through the settlement of its boundaries – particularly with Russia, where the ongoing presence of a dispute posed unacceptable security risks. Canada's anxiety about its own sovereignty plays the opposite role, acting as a barrier to settlement, albeit in circumstances where managing ongoing disputes is a viable option because of the amicable nature of its relationship with the United States. In the one Canada-U.S. boundary dispute where there is an explicit security dimension, namely the passage of U.S. submarines through Dixon Entrance, the two countries have essentially agreed to disagree, with Canada giving blanket permission for the voyages and the United States insisting that permission is not required.

Canada's unresolved maritime boundary disputes also seem to be related to concerns about legal consistency and the creation of

precedents.²³³ In both the Beaufort Sea and Dixon Entrance, Canada's legal position is attached to what might be called "hard points," namely the treaty concluded between Britain and Russia in 1825 and the A-B line drawn by an arbitral tribunal in 1903. Moving away from one of these hard points could increase the pressure to move away from the other. Similarly, the dispute seaward of Juan de Fuca Strait concerns, in part, the legality of Canada's straight baselines, which is also one of the central issues in the Canada-U.S. dispute over the status of the Northwest Passage. Canada might worry that a compromise seaward of Juan de Fuca Strait would weaken its position in the Arctic. Norway, being in a different position geographically and legally, has sought some of its settlements precisely in order to reinforce the equidistance principle elsewhere.

These examples demonstrate how having multiple boundary disputes with the United States has posed a sequencing problem for Canada since resolving any particular dispute almost always requires concessions from both sides. In 1977, Canada sought to solve the sequencing problem by offering to negotiate a "package" deal – an offer that was refused by the United States, which likely calculated that dealing with each boundary dispute in turn would work to its overall advantage. Norway's sequencing problem always concerned its dispute with Russia, which could only be resolved on the basis of some negotiated version of "equity." Norway dealt with the problem by resolving its other boundaries first, which freed it up to make a concession on equidistance during negotiations over the Barents Sea boundary. Whether Canada and Norway were right to be concerned about the creation of legal precedents in their different disputes, and therefore the sequencing of their resolution efforts, is another matter. Many states with multiple boundary disputes seem quite comfortable taking different legal positions, depending on their interests in any particular outcome.²³⁴

Another difference between Norway and Canada has been the willingness of the former country to use hydrocarbon cooperation regimes as a way of reaching final settlements. Although there is a provision on hydrocarbon sharing in the 1973 Canada-Greenland boundary treaty, this provision does not commit the parties to any procedures or outcomes. And while the 2012 tentative agreement on the Lincoln Sea foresees the inclusion of rules on hydrocarbon cooperation, that part of the treaty has yet to be finalized. Norway, in contrast, has hydrocarbon mechanisms built into most of its boundary treaties, including, most significantly, in the Barents Sea with Russia.

Notwithstanding its use of hydrocarbon cooperation regimes, Norway seems to have a relatively high tolerance for uncertainty when negotiating

boundary treaties. Canada, in contrast, seems to have a relatively low tolerance, as exhibited by its pullback from discussions on the Beaufort Sea boundary because of a lack of certainty as to the location of oil and gas reserves. Norway's relatively high tolerance for uncertainty about the existence and location of hydrocarbons might be explained, in part, by a counterbalancing desire to reduce uncertainty and risk of another kind, namely tensions and possible conflicts over competing claims to seabed resources in the Barents Sea. This desire for risk reduction has seen Norway make an ongoing effort to "tidy up its spatial fringes."²³⁵ In Canada, where all of the boundaries are with NATO allies, there seems to be more tolerance for uncertainty over political relations with neighbours, as manifested in the "management" of disputes.

Two final differences between the two countries concern constitutional structures and the rights of Indigenous peoples. As a federal state, Canada has several maritime boundary disputes that are complicated by provincial claims and even, potentially, constitutionally entrenched rights. It is difficult to imagine the governments of British Columbia and New Brunswick standing quietly by while the Government of Canada negotiates with the United States over Dixon Entrance or Machias Seal Island. Similarly, the *Inuvialuit Final Agreement* is a major complication for Canada in the Beaufort Sea boundary dispute. In contrast, Norway is a unitary state, and while the Saami people have significant rights under Norwegian law, none of those rights extend beyond the territorial sea.²³⁶ These factors, although not the focus of this article, further reflect the complexity involved in explaining how countries approach their maritime boundaries.

To conclude, our comparison of Norway's and Canada's maritime boundaries has revealed important differences, not in their general approaches to dispute settlement but, rather, in the nature of their respective sets of boundaries. Norway has benefitted from having a collection of boundary disputes that are relatively susceptible to settlement, and through a combination of active engagement, compromise, and strategic sequencing, it has been able to resolve them all. Canada, in contrast, has found itself with a collection of boundary disputes that are less susceptible to settlement. Each dispute has had its own set of factors that have favoured or disfavoured settlement, and two of them – in the Gulf of Maine and around St. Pierre and Miquelon – have been settled, albeit through recourse to adjudication or arbitration. The fact that Canada still has a number of unresolved maritime boundary disputes, it turns out, is not the result of a different policy approach. A careful

examination of the details of the individual disputes, and their context, has disproved this assumption.

Notes

¹ Sergei Lavrov & Jonas Gahr Støre, "Canada, Take Note: Here's How to Resolve Maritime Disputes," *The Globe and Mail* (21 September 2010), online: <<http://www.theglobeandmail.com/commentary/canada-take-note-heres-how-to-resolve-maritime-disputes/article4326372/>>.

² Canada also has unresolved boundaries beyond two hundred nautical miles from shore – between adjacent or opposing "extended continental shelves" – in the Beaufort Sea (with the United States), central Arctic Ocean (Denmark and Russia), Gulf of Maine (United States), and potentially off St. Pierre and Miquelon (France). Last but not least, it has a dispute with the United States over the status of the Northwest Passage. However, this article considers these disputes only insofar as they are relevant to the maritime boundary disputes within two hundred nautical miles from shore.

³ Victor Prescott & Grant Boyes, "Undelimited Maritime Boundaries in the Pacific Ocean Excluding the Asian Rim" (International Boundaries Research Unit, Durham University) (2000) 2:8 *Maritime Briefings* 11.

⁴ Victor Prescott & Clive Schofield, *Maritime Political Boundaries of the World* (Leiden: Martinus Nijhoff Publishers, 2004); Mom Ravin, *Law of the Sea: Maritime Boundaries and Dispute Settlement Mechanisms* (2005), online: <http://www.un.org/depts/los/nippon/unuff_programme_home/fellows_pages/fellows_papers/mom_0506_cambodia.pdf>.

⁵ *Truman Proclamation on the Continental Shelf*, Presidential Proclamation no 2667 (28 September 1945); *Geneva Convention on the Continental Shelf*, 29 April 1958, 499 UNTS 311 [*Geneva Convention*].

⁶ E.D. Brown, "Delimitation of Offshore Areas: Hard Labour and Bitter Fruits at UNCLOS III" (1981) 5:3 *Marine Policy* 172; *United Nations Convention on the Law of the Sea*, 10 December 1982, 1833 UNTS 3 [*UNCLOS*].

⁷ Donald M. McRae, "Canada and the Delimitation of Maritime Boundaries," in Donald M. McRae & Gordon Munro, *Canadian Oceans Policy: National Strategies and the New Law of the Sea* (Vancouver: UBC Press, 1989) 145 at 147.

⁸ Christopher Kirkey, "Delineating Maritime Boundaries: The 1977-1978 Canada-US Beaufort Sea Continental Shelf Delimitation Boundary Negotiations" (1995) 25 *Can Rev Am Stud* 49, 55.

⁹ *Ibid.* at 55-56, quoting Lorne Clark.

¹⁰ Kirkey, *ibid.* at 59-60 writes, "U.S. officials were concerned that by deviating from this position, which seeks to delimit wet boundaries according to the principle of equidistance – except in cases where specifically defined circumstances exist – American ability to successfully prevail either in the course of international negotiations over future maritime boundary cases, or regarding those cases brought before the ICJ, would be greatly reduced."

¹¹ *Ibid.* at 59.

¹² *Ibid.* at 60.

¹³ Ted L. McDorman, *Salt Water Neighbors: International Ocean Relations between the United States and Canada* (New York: Oxford University Press, 2009) at 135.

¹⁴ *Ibid.* at 140-42.

¹⁵ *Ibid.* at 137.

¹⁶ U.S. Senate, *Maritime Boundary Settlement with Canada*, Executive Report no 5, 97th Congress, 1st Session (1981) at 2, cited in *ibid.*

¹⁷ This was the first occasion on which two states took up the option of a chamber. See E. Valencia-Ospina, "The Use of Chambers of the International Court of Justice" in V. Lowe & M. Fitzmaurice, eds., *Fifty Years of the International Court of Justice: Essays in Honour of Sir Robert Jennings* (Cambridge: Cambridge University Press, 1996) 503.

¹⁸ *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, [1984] ICJ Rep 246 [*Gulf of Maine*].

¹⁹ McDorman, *supra* note 13 at 176-78. This issue could be dealt with in a new agreement – which will eventually be needed, in any event, to take the Canada-U.S. boundary into the extended continental shelf – by using a "special area" to assign Canada's rights over the 163 nautical square miles to the United States, in return for a U.S. compromise elsewhere. Special areas were pioneered in the 1990 United States-Soviet Union Boundary Treaty, where they did not attract protests from other states, and the same technique has been used in the 2010 Norway-Russia Boundary Treaty. See *Agreement between the United States of America and the Union of Soviet Socialist Republics on the Maritime Boundary*, 26 September 1990, 29 ILM 941 (1990), online: <<http://www.state.gov/documents/organization/125431.pdf>>; *Treaty between the Kingdom of Norway and the Russian Federation Concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean* (English translation), online: <http://www.regjeringen.no/upload/ud/vedlegg/folkerett/avtale_engelsk.pdf>. See also Byers, *International Law and the Arctic* (Cambridge: Cambridge University Press, 2013) at 35-36, 43-44.

²⁰ Kirkey, *supra* note 8 at 64, n 17.

²¹ Erik B. Wang, "Canada-United States Fisheries and Maritime Boundaries Negotiations: Diplomacy in Deep Water" (1981) 38:6 & 39:1 *Behind the Headlines* 1 at 15, quoted in Kirkey, *supra* note 8 at 64, n 17.

²² McDorman, *supra* note 13 at 134.

²³ Kirkey, *supra* note 8 at 64, n 17, quoting correspondence from Colson.

²⁴ McDorman, *supra* note 13 at 141.

²⁵ *Treaty of Paris*, 3 September 1783, online: <<https://www.loc.gov/tr/program/bib/ourdocs/paris.html>>.

²⁶ *Gulf of Maine*, *supra* note 18 at 265-66.

²⁷ McDorman, *supra* note 13 at 193-94.

²⁸ Kim Mackrael, "Canada, Denmark Closer to Settling Border Dispute," *The Globe and Mail* (29 November 2012), online: <<http://www.theglobeandmail.com/news/national/canada-denmark-closer-to-settling-border-dispute/article5831571/>>.

²⁹ Bernard H. Oxman, "International Maritime Boundaries: Political, Strategic, and Historical Considerations" (1994-95) 26:2 *U Miami Inter-Am L Rev* 243 at 256.

³⁰ One example is Pheasant Island in the middle of the Bidasoa River between France and Spain. See Byers, *supra* note 19 at 15.

³¹ McDorman, *supra* note 13 at 184 (referring to *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*), Diplomatic Note, ICJ Pleadings, 103 (1976) vol 5, Annex 8 to Reply of the United States, 529-30.

³² David H. Gray, "Canada's Unresolved Maritime Boundaries" (1997) 5:3 *International Boundaries Research Unit (IBRU) Boundary & Security Bulletin* 61 at 62.

³³ *Great Britain/Russia: Limits of Their Respective Possessions on the North-West Coast of America and the Navigation of the Pacific Ocean*, 16 February 1825, 75 CTS 95.

³⁴ *Ibid.*, art 3.

³⁵ See, e.g., U.S. Department of State, Exclusive Economic Zone and Maritime Boundaries, Public Notice 2237 (1995) 60 Fed Reg 43825-29.

³⁶ See McDorman, *supra* note 13 at 181-90, for the definitive presentation of the dispute as previously understood.

³⁷ Randy Boswell, "'Astonishing' Data Boost Arctic Claim," *Ottawa Citizen* (12 November 2008) at A3; Sian Griffiths, "US-Canada Arctic Border Dispute Key to Maritime Riches," *BBC News* (2 August 2010), online: <<http://www.bbc.co.uk/news/world-us-canada-10834006>>.

³⁸ UNCLOS, *supra* note 6.

³⁹ Randy Boswell, "Beaufort Sea Breakthrough," *Vancouver Sun* (17 February 2010), online: <<http://byers.typepad.com/arctic/2010/02/beaufort-sea-breakthrough.html>>.

⁴⁰ Canada, Speech from the Throne (3 March 2010), online: <<http://www.speech.gc.ca/eng/media.asp?id=1388>>.

⁴¹ Randy Boswell, "Canada Ready to Settle Beaufort Sea Dispute with U.S.: Cannon," *Vancouver Sun* (14 May 2010), online: <<http://byers.typepad.com/arctic/2010/05/canada-ready-to-settle-beaufort-sea-dispute-with-us-cannon.html>>.

⁴² Department of Foreign Affairs, "Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad" (2010), online: <http://www.international.gc.ca/polar-polaire/assets/pdfs/CAFP_booklet-PECA_livret-eng.pdf>; Randy Boswell, "Work Underway to Resolve Beaufort Sea Boundary Dispute," *Vancouver Sun* (26 July 2010), online: <<http://byers.typepad.com/arctic/2010/07/work-underway-to-resolve-beaufort-sea-boundary-dispute.html>>.

⁴³ For the 2011 "disposition map" of the Beaufort Sea and Mackenzie Delta produced by Aboriginal Affairs and Northern Development Canada, showing past discoveries and "shows," see <http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/nog_mp_bsmd_pg_1317059161670_eng.pdf>.

⁴⁴ Gary Park, "Beaufort Find Is Oil, Not Gas," *Petroleum News* (21 October 2007) 12, online: <<http://www.petroleumnews.com/pntruncate/304958258.shtml>>.

⁴⁵ Dina O'Meara, "Imperial Oil, Exxon-Mobil Canada Bet C\$585M on Offshore Arctic Oil and Gas," *Resource Investor* (19 July 2007), online: <<http://www.resourceinvestor.com/2007/07/19/imperial-oil-exxonmobil-canada-bet-c585m-on-offsho>>.

⁴⁶ Scott Hagggett, "BP Bids Big for Canadian Arctic Drilling Rights," *Reuters* (9 June 2008), online: <<http://uk.reuters.com/article/2008/06/09/uk-energy-arctic-idUKN0947438920080609>>.

⁴⁷ Shaun Polczer, "Firms Team Up in Arctic," *Calgary Herald* (31 July 2010), online: <<http://www2.canada.com/calgaryherald/news/calgarybusiness/story.html?id=a3a43f92-a51d-4402-a76d-61362b8105b8>>.

⁴⁸ "Shell Ends Exploration in Arctic Near Alaska 'for the Foreseeable Future'," *Associated Press* (28 September 2015), online: <<http://www.cbc.ca/news/business/shell-stops-arctic-drilling-development-1.3246355>>.

⁴⁹ *Ibid.*

⁵⁰ "Ban on New Arctic Drilling Gives Canada Leg Up, U.S. Lawmakers Say," *Reuters* (21 December 2016), online: <<http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/offshore-ban-in-arctic-will-cost-northern-economy-northwest-territories-premier-says/article33402219/>>.

⁵¹ Kirkey, *supra* note 8 at 58-59.

-
- ⁵² Randy Boswell, "Beaufort Sea Breakthrough," *Vancouver Sun* (17 February 2010), online: <<http://byers.typepad.com/arctic/2010/02/beaufort-sea-breakthrough.html>>.
- ⁵³ See, e.g., Maura Forrest, "Pasloski Says Beaufort Sea Drilling Lease Violates Canada's Arctic Sovereignty," *Yukon News* (23 March 2016), online: <<http://yukon-news.com/news/pasloski-says-beaufort-sea-drilling-lease-violates-canadas-arctic-sovereign/>>.
- ⁵⁴ 1984 *Inuvialuit Final Agreement* (as amended), online: <http://www.daair.gov.nt.ca/_live/documents/documentManagerUpload/InuvialuitFinalAgreement1984.pdf>. Under section 35 of the *Constitution Act 1982*, (UK), 1982, c 11, "rights that now exist by way of land claims agreements or may be so acquired" are "recognized and affirmed." See <http://laws.justice.gc.ca/eng/Const/page-12.html#sc:7_II>.
- ⁵⁵ *Inuvialuit Final Agreement*, *supra* note 54, especially s 12(2): "The Yukon North Slope shall fall under a special conservation regime whose dominant purpose is the conservation of wildlife, habitat and traditional native use." Curiously, the Inuvialuit Settlement Region extends more than six hundred nautical miles northward into the Beaufort Sea, well beyond Canada's exclusive jurisdiction over the living resources of the exclusive economic zone, though it is unclear whether Canada (in 1984 or at any time since) purports to exercise any exclusive jurisdiction beyond two hundred nautical miles. For a map of the Inuvialuit settlement area, see <<http://www.aadnc-aandc.gc.ca/eng/1100100031121/1100100031129#chp7>>.
- ⁵⁶ *Vienna Convention on the Law of Treaties*, 23 May 1969, 1155 UNTS 331, art 46(1): "A State may not invoke the fact that its consent to be bound by a treaty has been expressed in violation of a provision of its internal law regarding competence to conclude treaties as invalidating its consent unless that violation was manifest and concerned a rule of its internal law of fundamental importance."
- ⁵⁷ *Constitution Act 1982*, *supra* note 54, s 35; *R v Sparrow*, [1990] 1 SCR 1075 (Canada); *Haida Nation v British Columbia (Minister of Forests)*, [2004] 3 SCR 511; *Mikisew Cree First Nation v Canada (Minister of Canadian Heritage)*, [2005] 3 SCR 388; *Tsilhqot'in v. British Columbia* [2014] 2 SCR 256.
- ⁵⁸ *Convention between his Majesty and the United States of America, for the Adjustment of the Boundary between the Dominion of Canada and the Territory of Alaska*, 24 January 1903, online: <https://en.wikisource.org/wiki/Hay-Herbert_Treaty>. For the definitive history of the arbitration, and the resulting dispute over Dixon Entrance, see Charles B. Bourne & Donald M. McRae, "Maritime Jurisdiction in the Dixon Entrance: The Alaska Boundary Re-examined" (1976) 14 *CYIL* 183.
- ⁵⁹ *Alaska Boundary Case (Great Britain v United States)*, 20 October 1903, reprinted in UNRIAA, vol 40, 481-540, online: <http://www.legal.un.org/riaa/cases/vol_XV/481-540.pdf>.
- ⁶⁰ McDorman, *supra* note 13 at 168.
- ⁶¹ Bourne & McRae, *supra* note 58 at 215.
- ⁶² McDorman, *supra* note 13 at 285.
- ⁶³ McRae, *supra* note 7 at 154-55. *Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon*, July 2014, Pacific Salmon Commission, online: <<http://www.psc.org/>>.
- ⁶⁴ McDorman, *supra* note 13 at 170-72.
- ⁶⁵ *Ibid.*
- ⁶⁶ See: D.M. Johnston & M.J. Valencia, *Pacific Ocean Boundaries: Status and Solutions* (Dordrecht: Martinus Nijhoff, 1991) at 100 (explaining how the "symbolic

significance” of the A-B line “almost precludes the political possibility of a concession by Canada”).

⁶⁷ *Reference re: Ownership of the Bed of the Strait of Georgia and Related Areas*, [1984] 1 SCR 388, online: <<https://scc-csc.lexum.com/scc-csc/scc-csc/en/item/5267/index.do>>.

⁶⁸ *Submission of the Province of British Columbia on West Coast Maritime Boundaries between Canada and the United States* (Victoria: Queen’s Printer, 1977) [*Submission of the Province of British Columbia*].

⁶⁹ *Treaty Establishing the Boundary in the Territory on the Northwest Coast of America Lying Westward of the Rocky Mountains*, 15 June 1846, online: <https://web.archive.org/web/20091113034143/http://www.lexum.umontreal.ca/ca_us/en/cus.1846.28.en.html>.

⁷⁰ See U.S. notes reprinted in *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, Reply of the United States, *ICJ Pleadings, Oral Arguments, Documents*, vol V, Annex 4, 503-04.

⁷¹ McDorman, *supra* note 13 at 175.

⁷² McRae, *supra* note 7 at 154-55.

⁷³ *Submission of the Province of British Columbia*, *supra* note 68.

⁷⁴ Byers, *supra* note 19 at 133-34, 137-38.

⁷⁵ Act to Amend the Territorial Sea and Fishing Zones Act, SC 1969-70, c 68, s 1243.

⁷⁶ Gray, *supra* note 32 at 68.

⁷⁷ *Agreement between the Government of Canada and the Government of the Kingdom of Denmark relating to the Delimitation of the Continental Shelf between Greenland and Canada*, 17 December 1973, 13(3) ILM 506 (1974), online:

<<http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/DNK-CAN1973CS.PDF>> [*Agreement on the Continental Shelf*].

⁷⁸ Gray, *supra* note 32 at 68.

⁷⁹ *Agreement on the Continental Shelf*, *supra* note 77.

⁸⁰ For more on Hans Island, see Byers, *supra* note 19 at 10-16.

⁸¹ In 2005, Canada and Denmark issued a joint statement, indicating that their officials would “discuss ways to resolve the matter.” In the meantime, “all contact by either side with Hans Island will be carried out in a low key and restrained manner.” Canada-Denmark Joint Statement on Hans Island (19 September 2005), online: <<http://byers.typepad.com/arctic/canadadenmark-joint-statement-on-hans-island.html>>.

⁸² See, e.g., Martin Mittelstaedt, “Canada Closes Ports in Shrimp Dispute,” *The Globe and Mail* (15 February 2010), online: <<http://www.theglobeandmail.com/news/national/canada-closes-ports-in-shrimp-dispute/article1468540/>>.

⁸³ Steve Ducharme, “Shell’s Oil Permits Near Lancaster Sound Still Valid, INAC Says,” *Nunatsiaq News* (11 April 2016), online: <http://www.nunatsiaqonline.ca/stories/article/65674shells_oil_permits_near_lancaster_sound_still_valid_inac_says/>.

⁸⁴ Oxman, *supra* note 29 at 250, n 14.

⁸⁵ Gray, *supra* note 32 at 68.

⁸⁶ See: Executive Order no 176 on the Fishing Territory of Northern Greenland (14 May 1980), online: <<http://faolex.fao.org/docs/pdf/den99033E.pdf>>.

⁸⁷ Gray, *supra* note 32 at 68.

⁸⁸ *Anglo-Norwegian Fisheries Case*, [1951] ICJ Rep 116.

⁸⁹ Bruce Calderbank et al., *Canada’s Offshore: Jurisdiction, Rights, and Management*, 3rd ed. (Victoria: Trafford Publishing, 2006) at 163.

⁹⁰ “Royal Decree on Amendment of Royal Decree on Delimitation of the Territorial Waters of Greenland, 15 October 2004” (2005) 56 *Law of the Sea Bulletin* 126 at 128,

online: <http://www.un.org/Depts/los/doalos_publications/LOSBulletins/bulletinpdf/bulletin56e.pdf>.

⁹¹ For a map showing the Danish equidistance line post-2004, see the Map of the Outer Limits of the Exclusive Economic Zone of Greenland, reprinted in “Executive Order on the Exclusive Economic Zone of Greenland, 20 Oct. 2004” (2005) 56 Law of the Sea Bulletin 133 at 136, online: <http://www.un.org/Depts/los/doalos_publications/LOSBulletins/bulletinpdf/bulletin56e.pdf>.

⁹² Canadian Department of Foreign Affairs, “Canada and Kingdom of Denmark Reach Tentative Agreement on Lincoln Sea Boundary,” News Release (28 November 2012) (with background), online: <<http://news.gc.ca/web/article-en.do?nid=709479>>. See also Kim Mackrael, “Canada, Denmark a Step Closer to Settling Border Dispute,” *The Globe and Mail* (30 November 2012), online: <<http://www.theglobeandmail.com/news/national/canada-denmark-a-step-closer-to-settling-border-dispute/article5831571/>>.

⁹³ 2009 Act on Greenland Self-Government, online:

<<http://uk.nanoq.gl/~media/f74bab3359074b29aab8c1e12aa1ecfe.ashx>>.

⁹⁴ Department of Foreign Affairs, “Statement on Canada’s Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada’s Northern Strategy Abroad” (2010), online: <http://www.international.gc.ca/polar-polaire/assets/pdfs/CAFP_booklet-PECA_livret-eng.pdf>.

⁹⁵ Randy Boswell, “Canada Ready to Settle Beaufort Sea Dispute with U.S.: Cannon,” *Vancouver Sun* (14 May 2010), online: <<http://byers.typepad.com/arctic/2010/05/canada-ready-to-settle-beaufort-sea-dispute-with-us-cannon.html>>.

⁹⁶ *Court of Arbitration for the Delimitation of Maritime Areas between Canada and France: Decision in Case Concerning Delimitation of Maritime Areas (St. Pierre and Miquelon)*, 10 June 1992, 31 ILM 1145 (1992), para 8 [*Court of Arbitration for the Delimitation of Maritime Areas*].

⁹⁷ *Ibid.*

⁹⁸ *Agreement between the Government of Canada and the Government of France on Their Mutual Fishing Relations*, 27 March 1972, reprinted in *National Legislation and Treaties Relating to the Law of the Sea*, UN Legislative Series (1974) at 570-72 [*Canada-France Fishing Agreement*].

⁹⁹ *Agreement Establishing a Court of Arbitration for the Purpose of Carrying Out the Delimitation of Maritime Areas between France and Canada*, 30 March 1989, 29 ILM 1 (1990).

¹⁰⁰ *Court of Arbitration for the Delimitation of Maritime Areas*, *supra* note 96. The situation today is further complicated by the fact that the continental shelf in this area extends well beyond two hundred nautical miles. In 2013, Canada filed a submission concerning the seabed along the entire coast of Newfoundland, including offshore from St. Pierre and Miquelon, with the Commission on the Limits of the Continental Shelf. The next year, France included an area of seabed offshore St. Pierre and Miquelon within its submission to the same body. Canada responded by reiterating that France has no rights – to either additional exclusive economic zone or extended continental shelf – beyond those awarded by the tribunal in 1992.

¹⁰¹ Phillip M. Saunders & David L. VanderZwaag, “Canada and St. Pierre and Miquelon Transboundary Relations: Battles and Bridges” in Dawn A. Russell & David L. VanderZwaag, eds., *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainability Principles: Canadian and International Perspectives* (Leiden: Martinus Nijhoff, 2010) 209.

-
- ¹⁰² *Canada-France Fishing Agreement*, *supra* note 98 at 570-72.
- ¹⁰³ Ted L. McDorman, "Canada and France Agree to Arbitration for the St. Pierre and Miquelon Boundary Dispute" (1990) 5 *Intl J Estuarine & Coastal L* at 357, 358.
- ¹⁰⁴ *Ibid.* at 357, 358-59.
- ¹⁰⁵ *Ibid.* at 357, 359.
- ¹⁰⁶ *Ibid.*
- ¹⁰⁷ *Ibid.* 357, 358-59.
- ¹⁰⁸ Norwegian Ministry of Petroleum and Energy, "Norsk oljehistorie på 5 minutter" ("Norwegian Oil History in 5 Minutes"), *Oil Gas* (2016), online: <<https://www.regjeringen.no/no/tema/energi/olje-og-gass/norsk-oljehistorie-pa-5-minutter/id440538/>>.
- ¹⁰⁹ Norwegian Petroleum Directorate, "Norway's Petroleum History," *Nor Pet* (2017), online: <<http://www.norskpetroleum.no/en/framework/norways-petroleum-history/>>.
- ¹¹⁰ *Geneva Convention*, *supra* note 5.
- ¹¹¹ Helge Ryggvik, "Forhandlingene om Norges kontinentalsokkel" ("The Negotiations over Norway's Continental Shelf"), *Store Nor Leks (Great Norwegian Encyclopaedia)* (2014), online: <https://snl.no/Forhandlingene_om_Norges_kontinentalsokkel> [Ryggvik, "Forhandlingene"].
- ¹¹² *Ibid.*
- ¹¹³ Helge Ryggvik, "A Short History of the Norwegian Oil Industry: From Protected National Champions to Internationally Competitive Multinationals" (2015) 89:1 *Business History Rev* 3 at 6-7.
- ¹¹⁴ Ryggvik, "Forhandlingene," *supra* note 111.
- ¹¹⁵ Torbjørn Kindingstad, *Norges oljehistorie (Norwegian Oil History)* (Oslo: Wigestrands, 2002).
- ¹¹⁶ L.C. Green, "The Anglo-Norwegian Fisheries Case, 1951 (ICJ Reports 1951, p. 116)," (1952) 15:3 *Modern L Rev* 373.
- ¹¹⁷ Norwegian Petroleum Directorate, *supra* note 109.
- ¹¹⁸ Aileen McHarg et al., *Property and the Law in Energy and Natural Resources* (New York: Oxford University Press, 2010) at 67.
- ¹¹⁹ Alex G. Oude Elferink, *The Delimitation of the Continental Shelf between Denmark, Germany and the Netherlands* (Cambridge: Cambridge University Press, 2013) at 74-86 [Elferink, *Delimitation of the Continental Shelf*].
- ¹²⁰ *Ibid.*
- ¹²¹ Ryggvik, "Forhandlingene," *supra* note 111.
- ¹²² Elferink, *Delimitation of the Continental Shelf*, *supra* note 119 at 80-90.
- ¹²³ Ryggvik, "Forhandlingene," *supra* note 111.
- ¹²⁴ Kindingstad, *supra* note 115.
- ¹²⁵ *Geneva Convention*, *supra* note 5.
- ¹²⁶ Ryggvik, "Forhandlingene," *supra* note 111; Kindingstad, *supra* note 115; Petter Ulleland, *Den undersjøiske fjellhulle: Konsolideringen av den norske kontinentalsokkel 1982-2007* (Tromsø: University of Tromsø, 2008).
- ¹²⁷ Tore Jørgen Hanisch & Gunnar Nerheim, *Norsk Oljehistorie. Fra vantro til overmot? Bind 1 (Norwegian Oil History: From Disbelief to Bravado)* (Oslo: Leseselskapet, 1992); Rolf Tamnes, *Oljealder 1965-1995: Norsk Utenrikspolitisk Historie (Norwegian History of Foreign Affairs)* (Oslo: Cappelen Damm, 1997); Ulleland, *supra* note 126.
- ¹²⁸ Robin Churchill, "Claims to Maritime Zones in the Arctic — Law of the Sea Normality or Polar Peculiarity?" in Alex Oude Elferink & Donald Rothwell, eds., *The*

Law of the Sea and Polar Maritime Delimitation and Jurisdiction (The Hague: Martinus Nijhoff Publishers, 2001) 105 at 118 [Churchill, "Claims to Maritime Zones"].

¹²⁹ *Ibid.*

¹³⁰ Ryggvik, "Forhandlingene," *supra* note 111; Ulleland, *supra* note 126.

¹³¹ Churchill, "Claims to Maritime Zones," *supra* note 128.

¹³² Robin Churchill, "The Greenland-Jan Mayen Case and its Significance for the International Law of Maritime Boundary Delimitation" (1994) 9:1 *Intl J Mar Coast L* 1 [Churchill, "Greenland-Jan Mayen Case"].

¹³³ *Ibid.*

¹³⁴ Ulf Linderfalk, "The Jan Mayen Case (Iceland/Norway): An Example of Successful Conciliation," *Social Science Research Network* (24 May 2016) at 1-26, online:

<<https://ssrn.com/abstract=2783622>>; Ryggvik, "Forhandlingene," *supra* note 111.

¹³⁵ *Agreement on the Continental Shelf between Iceland and Jan Mayen*, 22 October 1981, online: <<http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/ISL-NOR1981CS.PDF>> [*Agreement between Iceland and Jan Mayen*].

¹³⁶ *Ibid.*

¹³⁷ *Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v Norway)*, [1993] ICJ Rep 38, online: <<http://www.icj-cij.org/docket/files/78/6743.pdf>>.

¹³⁸ Alf Håkon Hoel, "The Legal-Political Regime in the Arctic" in *Geopolitics and Security in the Arctic: Regional Dynamics in a Global World* (New York: Routledge, 2014) 49 at 55; Churchill, "Greenland-Jan Mayen Case," *supra* note 132.

¹³⁹ Ryggvik, "Forhandlingene," *supra* note 111.

¹⁴⁰ Kindingstad, *supra* note 115.

¹⁴¹ Ryggvik, "Forhandlingene," *supra* note 111; Linderfalk, *supra* note 134.

¹⁴² *Agreement between Iceland and Jan Mayen*, *supra* note 135.

¹⁴³ Ryggvik, "Forhandlingene," *supra* note 111.

¹⁴⁴ Guðni Th. Jóhannesson, "The Jan Mayen Dispute between Iceland and Norway, 1979-1981: A Study in Successful Diplomacy?" *Arctic Frontiers, Tromsø* (24 January 2013), online: <http://gudnith.is/efni/jan_mayen_dispute_24_jan_2013>.

¹⁴⁵ *Agreement between Iceland and Norway Concerning Transboundary Hydrocarbon Deposits*, 3 November 2008, online: <http://www.nea.is/media/olia/JM_unitisation_agreement_Iceland_Norway_2008.pdf>.

¹⁴⁶ Agreed Minutes Concerning the Right of Participation pursuant to Articles 5 and 6 of the Agreement of 22 October 1981 between Iceland and Norway on the Continental Shelf in the Area between Iceland and Jan Mayen, 3 November 2008, online:

<http://www.nea.is/media/olia/JM_agreed_minutes_Iceland_Norway_2008.pdf>.

¹⁴⁷ Jonas Karlsbakk, "Norway and Iceland Sign Border Treaty," *Independent Barents Observer* (5 November 2008), online: <<http://barentsobserver.com/en/node/20950>>.

According to the same report, the new treaty was signed just three days after the Norwegian Bank gave the Icelandic government a loan of approximately €1 million as part of Norway's assistance to Iceland during the global financial crisis.

¹⁴⁸ McDorman, *supra* note 13 at 333-37.

¹⁴⁹ Churchill, "Greenland-Jan Mayen Case," *supra* note 132 at 6.

¹⁵⁰ *Ibid.* at 3-6.

¹⁵¹ *Ibid.* at 3.

¹⁵² *Svalbard Treaty*, 9 February 1920, online: <http://www.sysselmannen.no/Documents/Sysselmannen_dok/English/Legacy/The_Svalbard_Treaty_9ssFy.pdf>.

¹⁵³ Robin Churchill & Geir Ulfstein, *Marine Management in Disputed Areas: The Case of the Barents Sea* (London: Routledge, 1992) at 63.

¹⁵⁴ *Ibid.* at 47.

¹⁵⁵ *Ibid.* at 63.

¹⁵⁶ *Geneva Convention*, *supra* note 5. See Tore Henriksen & Geir Ulfstein, "Maritime Delimitation in the Arctic: The Barents Sea Treaty" (2011) 42 *Ocean Development & Intl L* 1 at 2 [Henriksen & Ulfstein, "Maritime Delimitation"].

¹⁵⁷ Henriksen & Ulfstein, "Maritime Delimitation," *supra* note 156.

¹⁵⁸ Asim Zia, Ilan Kelman & Michael H. Glantz, "Arctic Melting Tests the United Nations Convention on the Law of the Sea" in Rebecca H. Pincus & Saleem H. Ali, eds., *Diplomacy on Ice Energy and the Environment in the Arctic and Antarctic* (New Haven: Yale University Press, 2015) at 132.

¹⁵⁹ Arild Moe, Daniel Fjærtøft & Indra Øverland, "Space and Timing: Why Was the Barents Sea Delimitation Dispute Resolved in 2010?" (2011) 34:3 *Polar Geography* 145 at 147.

¹⁶⁰ Laila Ø. Bakken & Kristian Aanensen, "Historisk løsning av delelinjen" ("Historical Settlement of the Delimitation Line"), *Norwegian Broadcasting Corporation* (27 April 2010), online: <https://www.nrk.no/norge/-historisk-losning-av-delelinjen-1.7098938>.

¹⁶¹ *Ibid.*

¹⁶² *Agreement between the Russian Federation and the Kingdom of Norway on the Maritime Delimitation in the Varangerfjord Area*, reprinted in (2007) 67 *UN Law of the Sea Bulletin* 42, online: <http://www.un.org/depts/los/doalos_publications/LOSBulletins/bulletinpdf/bulletin67e.pdf> (*Agreement on the Varangerfjord Area*).

¹⁶³ "Agreement between Norway and Russia on Maritime Delimitation in the Varangerfjord Area," Press Release (2007), online: <<https://www.regjeringen.no/en/aktuelt/Agreement-signed-between-Norway-and-Russ/id476347/>>.

¹⁶⁴ "Joint Statement on Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean" (27 April 2010), online: <http://www.regjeringen.no/upload/UD/Vedlegg/Folkerett/030427_english_4.pdf>.

¹⁶⁵ *Treaty between the Kingdom of Norway and the Russian Federation Concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean*, 2010, online: <http://www.regjeringen.no/upload/ud/vedlegg/folkerett/avtale_engelsk.pdf> [English translation] (*Treaty on the Barents Sea and the Arctic Ocean*). See also Henriksen & Ulfstein, "Maritime Delimitation," *supra* note 156; Thilo Neumann, "Norway and Russia Agree on Maritime Boundary in the Barents Sea and the Arctic Ocean" (2010) 14:34 *ASIL Insight*, online: <http://www.asil.org/files/2010/insights/insights_101109.pdf>. On the prompt ratifications, see Walter Gibbs, "Norway Hails Barents Treaty OK by Russian Duma," *Reuters* (26 March 2011), online: <<http://www.reuters.com/article/2011/03/26/barentstreaty-idUSLDE72P0HY20110326>>.

For a map of the new boundary line, see

<http://www.regjeringen.no/upload/UD/kart/kart_100914_ny.gif>.

¹⁶⁶ Henriksen & Ulfstein, "Maritime Delimitation," *supra* note 156 at 7.

¹⁶⁷ For a more detailed analysis, see Byers, *supra* note 19 at 43-44.

¹⁶⁸ <http://www.rcinet.ca/eye-on-the-arctic/2010/09/16/norway-and-russia-sign-treaty-to-end-boundary-dispute-in-barents-sea/>.

¹⁶⁹ Moe, Fjærtøft & Øverland, *supra* note 159.

¹⁷⁰ Willy Østreng & Yngvild Prydz, *Delelinjen i Barentshavet: Planlagt samarbeid versus uforutsett konflikt? (The Boundary in the Barents Sea: Planned Cooperation versus Unexpected Conflict)* (2007).

¹⁷¹ Bakken & Aanensen, *supra* note 160.

-
- ¹⁷² Dag H. Claes & Arild Moe, "Arctic Petroleum Resources in a Regional and Global Perspective" in Rolf Tamnes & Kristine Offerdal, eds., *Geopolitics and Security in the Arctic: Regional Dynamics in a Global World* (London: Routledge, 2014) 97 at 102-10.
- ¹⁷³ *Ibid.*
- ¹⁷⁴ Øistein Harsem, Arne Eide & Knut Heen, "Factors Influencing Future Oil and Gas Prospects in the Arctic" (2011) 39:12 *Energy Policy* 8037.
- ¹⁷⁵ Claes & Moe, *supra* note 171.
- ¹⁷⁶ Tore Henriksen & Geir Ulfstein, "Maritime Delimitation in the Arctic: The Barents Sea Treaty" (2010) 42:1-2 *Ocean Dev Intl L* 1; *Agreement on the Varangerfjord Area*, *supra* note 162; *Treaty on the Barents Sea and the Arctic Ocean*, *supra* note 162.
- ¹⁷⁷ Atle Staalesen, "Lukoil Is Norway's New Arctic Petro Partner," *Independent Barents Observer* (24 May 2016), online: <<https://thebarentsobserver.com/en/industry/2016/05/lukoil-norways-new-arctic-petro-partner>>.
- ¹⁷⁸ Geir Hønneland, "Co-management and Communities in the Barents Sea Fisheries" (1999) 58:4 *Hum Organ* 397 [Hønneland, "Co-management and Communities"]; Geir Hønneland, "Norsk-russisk miljø-og ressursforvaltning i nordområdene" ("Norwegian-Russian Environmental and Resource Management in the High North") (2012) 29 *Nordlit*, online: <<http://septentrio.uit.no/index.php/nordlit/article/view/2303/2134>>.
- ¹⁷⁹ Geir Hønneland, "Co-Management and Communities in the Barents Sea Fisheries" (1999) 58:4 *Human Organization* 397.
- ¹⁸⁰ Geir Hønneland, *Hvordan skal Putin ta Barentshavet tilbake? (How Will Putin Reclaim the Barents Sea?)* (Bergen: Fagbokforlaget, 2013) [Hønneland, *Hvordan skal*].
- ¹⁸¹ *Ibid.*
- ¹⁸² *Ibid.*
- ¹⁸³ Andreas Østhagen, "High North, Low Politics—Maritime Cooperation with Russia in the Arctic" (2016) 7:1 *Arctic Rev L & Politics* 83.
- ¹⁸⁴ "Norway and Russia to Step Up Cooperation in Hunt for Arctic Oil," *Reuters* (28 November 2016), online: <<http://www.reuters.com/article/norway-russia-oil-idUSL8N1DT3H9>>.
- ¹⁸⁵ Moe, Fjærtøft & Øverland, *supra* note 159.
- ¹⁸⁶ *Ibid.*
- ¹⁸⁷ Alex G. Oude Elferink, "Maritime Delimitation between Denmark/Greenland and Norway" (2007) 38:4 *Ocean Dev Intl Law* 375 [Elferink, "Maritime Delimitation"].
- ¹⁸⁸ *Treaty between Norway, The United States of America, Denmark, France, Italy, Japan, the Netherlands, Great Britain and Ireland and the British Overseas Dominions and Sweden Concerning Spitsbergen signed in Paris 9th February 1920*, 9 February 1920, 1-15, online: <http://www.sysselmannen.no/Documents/Sysselmannen_dok/English/Legacy/The_Svalbard_Treaty_9ssFy.pdf>.
- ¹⁸⁹ Torbjørn Pedersen & Tore Henriksen, "Svalbard's Maritime Zones: The End of Legal Uncertainty?" (2009) 24:1 *Intl J Mar Coastal L* 141.
- ¹⁹⁰ Erik J. Molenaar, "Fisheries Regulation in the Maritime Zones of Svalbard" (2012) 27:1 *Intl J Marine Coastal L* 3.
- ¹⁹¹ Hønneland, *Hvordan skal*, *supra* note 179 at 31.
- ¹⁹² McDorman, *supra* note 13 at 21-34.
- ¹⁹³ D.H. Anderson, "The Status under International Law of the Maritime Areas around Svalbard" (2009) 40:4 *Ocean Dev Intl L* 373.
- ¹⁹⁴ Torbjørn Pedersen, "The Svalbard Continental Shelf Controversy: Legal Disputes and Political Rivalries" (2006) 37:3-4 *Ocean Dev & Intl L* 339; Thomas Nilsen, "Limits

of Norway's Arctic Seabed Agreed," *Independent Barents Observer* (16 April 2009), online: <<http://barentsobserver.com/en/node/19278>>.

¹⁹⁵ Johan Hammerstrøm, "Russland varsler Svalbard-bråk om nye oljeområder," *E24* (2015), online: <<http://e24.no/makro-og-politikk/russland/russland-varsler-svalbard-braak-om-nye-oljeomraader/23686830>>.

¹⁹⁶ Anderson, *supra* note 192 at 373-84.

¹⁹⁷ *Agreement between the Government of the Kingdom of Norway on the One Hand, and the Government of the Kingdom of Denmark Together with the Home Rule Government of Greenland on the Other Hand, Concerning the Delimitation of the Continental Shelf and the Fisheries Zones in the Area between Greenland and Svalbard, Copenhagen*, 20 February 2006, 2378 UNTS 21 [*Svalbard-Greenland Delimitation Agreement*].

¹⁹⁸ See generally Elferink, "Maritime Delimitation," *supra* note 119.

¹⁹⁹ Ida Cathrine Thomassen, *The Continental Shelf of Svalbard: Its Legal Status and the Legal Implications of the Application of the Svalbard Treaty Regarding Exploitation of Non-Living Resources* (Tromsø: University of Tromsø, 2013) at 30.

²⁰⁰ Elferink, "Maritime Delimitation," *supra* note 119 at 376.

²⁰¹ Thomassen, *supra* note 198.

²⁰² Oxman, *supra* note 29 at 254.

²⁰³ Ryggvik, "Forhandlingene," *supra* note 111.

²⁰⁴ Oxman, *supra* note 29 at 254, n 24.

²⁰⁵ *Ibid.* at 265.

²⁰⁶ Moe, Fjærtøft & Øverland, *supra* note 159 at 147.

²⁰⁷ *Agreement on an Interim Practical Arrangement for Fishing in an Adjoining Area in the Barents Sea, 1978*, original Norwegian text reprinted in *Overenskomster med fremmede stater* (1978) at 436. For more details, see Kristoffer Stabrun, "The Grey Zone Agreement of 1978: Fishery Concerns, Security Challenges and Territorial Interests" (2009) 13 FNI Rep 1.

²⁰⁸ Tamnes, *supra* note 127 at 294-302; Moe, Fjærtøft & Øverland, *supra* note 159 at 148.

²⁰⁹ Moe, Fjærtøft & Øverland, *supra* note 159.

²¹⁰ Ryggvik, "Forhandlingene," *supra* note 111.

²¹¹ When it later became apparent that the field that stimulated the Norwegian oil boom in the 1970s – *Ekofisk* – was located on the Norwegian side of the tri-point where the Norwegian, British, and Danish continental shelves meet in the North Sea, questions were raised in the United Kingdom and Denmark about the 1964 and 1965 agreements. However, the newly agreed boundaries were never challenged. Kristin Øye Gjerde, "Kunne Valhall vært dansk?" ("Could Valhall Have Been Danish?") *Kult Valhall* (2015) online: <<http://www.kulturminne-valhall.no/Historien/1960-aarene-Oljeleting/Kunne-Valhall-vaert-dansk>>; Ryggvik, "Forhandlingene," *supra* note 111.

²¹² See, e.g., Tamnes, *supra* note 127; Iver B. Neumann et al., *Norge og alliansene: gamle tradisjoner, nytt spillerom* (Norway and Alliances: Old Traditions, New Games) (Oslo: Norwegian Institute of International Affairs, 2008); Marie Haraldstad, "Embetsverkets rolle i utforming av norsk sikkerhetspolitikk: Nærområdeinitiativet" ("The Role of the Norwegian Bureaucracy in the Design of Norwegian Security Policy: The Neighborhood Policy Initiative") (2014) 72:4 Int Polit 431; Iver B. Neumann & Sieglinde Gstöhl, *Lilliputians in Gulliver's World? Small States in International Relations* (San Diego: International Studies Association, 2006).

²¹³ Tamnes, *supra* note 127; Olav Riste, "With an Eye to History: The Origins and Development of 'Stay-Behind' in Norway" (2007) 30:6 J Strateg Stud 997.

²¹⁴ Although this does not imply that Norway is devoid of power politics, as an active North Atlantic Treaty Organization member with a dependence on the United States for security assurances. See Paal S. Hilde, "Armed Forces and Security Challenges in the Arctic" in Rolf Tamnes & Kristine Offerdal, eds., *Geopolitics and Security in the Arctic: Regional Dynamics in a Global World* (London: Routledge, 2014) 147; Leif C. Jensen & Geir Hønneland, "Framing the High North: Public Discourses in Norway after 2000" (2011) 28:1 *Acta Borealis* 37; Østhagen, *supra* note 182.

²¹⁵ Tamnes, *supra* note 127.

²¹⁶ Referring to the Labour party (red), the Socialist party (red/green), and the Center party (agrarian green).

²¹⁷ Norwegian Ministry of Foreign Affairs, *St.meld. nr. 30 (2004-2005): Muligheter og utfordringer i nord* (Oslo, 2005); Olav Orheim et al., *NOU 2003:32 Mot nord! Utfordringer og muligheter i nordområdene* (Oslo: Norwegian Ministry of Foreign Affairs, 2003); Bjørn Brunstad et al., *Big Oil Playground, Russian Bear Preserve or European Periphery?* (Delft: Eburon Academic Publishers, 2004).

²¹⁸ ECON, *2025 Ringer i vannet (2025 Circles in the Water)* (Oslo: ECON, 2006) at 1-29, online: <http://www.aksjonsprogrammet.no/vedlegg/ECON_ringer06.pdf>, 2005); Brunstad et al., *Big Oil Playground*.

²¹⁹ Hønneland, *Hvordan skal*, *supra* note 179; Hønneland, "Co-management and Communities," *supra* note 177.

²²⁰ Jensen & Hønneland, *supra* note 213.

²²¹ Hønneland, *Hvordan skal*, *supra* note 179.

²²² See Moe, Fjærtøft & Øverland, *supra* note 159.

²²³ Katarzyna Zysk, 'Russia's Arctic Strategy: Ambitions and Restraints' in Barry Scott Zellen, ed., *Fast-changing Arctic: Rethinking Arctic Security in a Warmer World* (Calgary: University of Calgary Press, 2013) 281.

²²⁴ Moe, Fjærtøft & Øverland, *supra* note 159 at 158.

²²⁵ Oxman, *supra* note 29 at 259, n 35; Churchill, "Greenland-Jan Mayen Case," *supra* note 132.

²²⁶ Oxman, *supra* note 29 at 251.

²²⁷ *Ibid.* at 294.

²²⁸ Whitney P. Lackenbauer, "Polar Race or Polar Saga? Canada and the Circumpolar World" in James Kraska, ed., *Arctic Security in an Age of Climate Change* (New York: Cambridge University Press, 2011) at 219.

²²⁹ McDorman refers to the "emotional freight" of sovereignty disputes, especially for Canada *via-à-vis* the United States. McDorman, *supra* note 13 at 3.

²³⁰ Stephen Brooks, "Canada-United States Relations" in John C. Courtney & David E. Smith, eds., *The Oxford Handbook of Canadian Politics* (Oxford: Oxford University Press, 2010) 379.

²³¹ *North American Free Trade Agreement*, 17 December 1992, 32 ILM 289, 605 (1993).

²³² McDorman, *supra* note 13 at 195.

²³³ In the *Gulf of Maine* case, *supra* note 18, Canada was concerned that advancing an equidistance-based argument would weaken its position in the Beaufort Sea and Dixon Entrance. It therefore reframed the argument to focus on equity considerations – considerations that, not coincidentally, led to an equidistant result. See McRae, *supra* note 7 at 155.

²³⁴ Prosper Weil, *The Law of Maritime Delimitation: Reflections* (London: Grotius Publications, 1989).

²³⁵ Paraphrasing Moe, Fjærtøft & Øverland, *supra* note 159 at 158.

²³⁶ Øyvind Ravna, "Samerett og samiske rettigheter i Norge" ("Sami Law and Sami Rights in Norway") in *Juss i Nord: Hav, fisk og urfolk: En hyllest til Det juridiske fakultet ved Universitetet i Tromsø 25-årsjubileum* (Law in the North: Ocean, Fish and Indigenous Peoples: A Tribute to the Legal Faculty at the University of Tromsø's 25th Anniversary) (Oslo: Gyldendal, 2012).



14

“Close, like-minded partners committed to democratic principles”: Settling the Hans Island/Tartupaluk Territorial Dispute

P. Whitney Lackenbauer and Rasmus Leander
Nielsen*

I cannot imagine many purposes for which Hans Island, or Tartupaluk in Greenlandic, would be useful for a government at all. It is extremely remote, provides no shelter, no decent landing for any vessels, no oil or gas reserves are known to hide in its vicinity, no mineral deposits in its core, it is ice-encapsulated and dangerously windswept most of the year. Perhaps in a distant ice-free future a bit of very high-Arctic traffic might pass by, but it would still most likely have no reason to dwell here.

But, of course, as a political phenomenon Hans Island is extremely provoking. It bears testimony to just how easily even the lowliest, most desolate piece of no-good territory may still excite otherwise friendly, democratic, NATO-embedded nations and make them unable to reach any semblance of an agreement even after 45 years of negotiations.

Danish journalist Martin Breum, May 2018¹

This agreement is a significant historic milestone in the relationship between friends and neighbours and is the culmination of years of

* Originally published in *Arctic Yearbook 2022*, eds. Lassi Heininen, Heather Exner-Pirot, and Justin Barnes (Akureyri: Northern Research Forum, 2022), 1-11.

discussions. The efforts deployed to reach this outcome demonstrate their leadership in the region and commitment to resolve disputes peacefully and in accordance with international law.

The land boundary on Tartupaluk reflects the strong historic and cultural relations between communities in Canada and Greenland. It paves the way for stronger cooperation and the establishment of an even closer partnership between them.

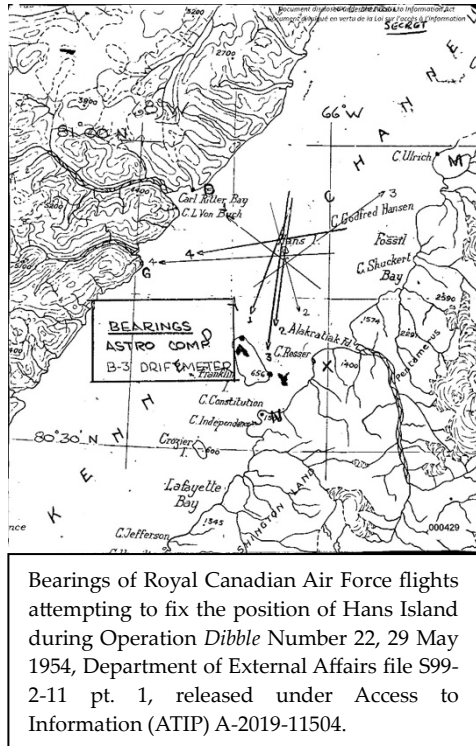
Global Affairs Canada News Release, June 2022²

On 14 June 2022, an agreement between Canada and the Kingdom of Denmark, together with Greenland, resolved the long-standing dispute over the sovereignty of Hans Island (which is known as Tartupaluk in Greenlandic) by creating a land boundary. This 1.3-square-kilometre barren and uninhabited sandstone island is situated in the middle of Kennedy Channel between Ellesmere Island and Greenland, lying exactly eighteen kilometres from both islands. Its status as the source of the only outstanding Arctic dispute involving sovereignty over land meant that the island attracted a disproportionate amount of attention as an example of unsettled – and thus uncertain – boundaries.³

The question of the ownership of Hans Island first arose in 1973 when Canada and the Kingdom of Denmark delimited the continental shelf between Ellesmere Island and Greenland. The two sides could not agree on the status of the island, which fell right on the maritime boundary line dividing the continental shelf between the two countries, so they chose to set aside the question of the island itself. The shelf surrounding the island was delimited, with the maritime boundary stopping at the low-water mark on the island's south side and starting again from the low-water mark on the north side.⁴ Accordingly, and despite popular misconceptions, the dispute had no significant impact on the status of the waters, seabed resources, or navigation rights around Hans Island itself.

Both countries sporadically raised the issue of territorial ownership and undertook various public demonstrations to reinforce their claims. After discovering that Canada's Dome Petroleum was using Hans Island as a platform for research activities, the Danes sent an expedition to it in 1984 to plant their flag and proclaim sovereignty, leaving the message "Welcome to the Danish Island" and a bottle of brandy. Canada responded in kind with its own sign, a Canadian flag, and bottles of Canadian Club whiskey. This comical dance continued for the next two decades and became colloquially known as the "Whiskey War" between the two countries.⁵

The Danish position rests primarily on the principles of discovery, geology, and usage. Hans Island was “discovered” in the second half of the nineteenth century by one or several American-led expeditions undertaken in agreement with Danish authorities and with the participation of the famous Greenlandic explorer Hans Hendrik (1834-89) of Fiskenesst, who was also known by his Greenlandic name Suersaq.⁶ Previously and subsequently, Greenlandic Inuit stopped on the island when crossing to Ellesmere Island to hunt. On the other hand, Canadian Inuit have never used Hans Island regularly.⁷



For its part, Canada claims that the entire region was transferred to its control by a British order-in-council in 1880 that incorporated “all British Territories and possessions in North America, not already included in the Dominion of Canada, and all islands adjacent to any such territories or possessions.” When Canada looked into the question of sovereignty over Hans Island in 1953, its then-current political map placed Hans Island closer to Ellesmere Island (a distance of eight or nine miles) than to Greenland (a distance of fourteen or fifteen miles). However, observations taken the previous summer by the Topographical Survey of Canada “place[d] the island exactly on the median line between the two coasts,” thus creating uncertainty about whether it straddled the “boundary line” or “falls to the west of it and is territory over which the Canadian Government claims to exercise sovereign rights.”⁸ Royal Canadian Air Force attempts to establish the precise position of Hans Island proved inconclusive, but Canadian maps continued to place the island on the Canadian side of the median line demarking the boundary with Greenland.⁹ Canada issued a land use permit to Dome Petroleum in the 1980s to use the island as a scientific base to study ice movements, with

Denmark submitting a diplomatic protest. For its part, Canada issued a formal protest when Denmark's minister of Greenlandic affairs, Tom Høyem, visited the island in 1984 and left a Danish flag as well as a message stating "Welcome to the Danish Island" ("Velkommen til den danske ø" in Danish),¹⁰ and Canada also protested four years later when a Danish inspection crew planted the Dannebrog on the island again.¹¹ The so-called "Whiskey War" ensued, with Canadians replacing the Danish flag with the Canadian one and leaving a bottle of Canadian Club whenever they visited the island, and the Danes reciprocating and leaving a bottle of schnapps when they visited.

Given that the small island is uninhabited, possesses no strategic value, and boasts no natural resources, this territorial dispute involved no substantive material interests,¹² but it took on heightened symbolic and nationalist significance when the Danes sent naval vessels to the island in 2002 and 2003. "If Canada does not fight aggressively against Danish actions, it will be viewed as a weak and easy target," Canadian political scientist Rob Huebert warned. "If, in fact, it loses the claim over Hans Island, it could show how little capability Canada has to properly patrol northern Canada. This would mean that other countries that are disputing northern claims with Canada will find it easier to win their claims."¹³ Canada responded in 2005 with an inukshuk-raising and flag-planting visit by Canadian Rangers and soldiers as part of Exercise Frozen Beaver, followed by a highly publicized visit by Minister of National Defence Bill Graham – with the Danes expressing displeasure to the Canadian ambassador in Copenhagen.¹⁴ The media frenzy soon alluded to Canada's 1995 "Turbot War" with the Spanish and even a possible "domino" effect, suggesting that if Canada lost Hans Island, its other Arctic islands might succumb to a similar fate.¹⁵ Danish rear-admiral and former head of the Royal Danish Defence Academy Nils Wang later compared the Canadian flag planting on Hans Island to the controversial Russian planting of a titanium flag on the seabed at the North Pole in 2007, suggesting that both were geopolitical examples of offensive signalling via flags in the Arctic.¹⁶

Fortunately, the issue soon returned to a diplomatic track. To reduce tensions, Canada and the Kingdom of Denmark issued a joint statement in September 2005 declaring that "we will continue our efforts to reach a long-term solution to the Hans Island dispute." The statement also provided that "in the tradition of cooperation in the region between our scientists we will explore the feasibility of joint scientific projects on or in the area of Hans Island." The two neighbours also agreed to keep each other informed of any activities related to the island and pledged that "all contact by either side with Hans Island will be carried out in a low key

and restrained manner.”¹⁷ Thus, when a Danish cruise vessel landed on the island in 2010 and tourists’ Facebook posts showed them planting Danish and Greenlandic flags there, the head of Denmark’s Arctic Command urgently called his Canadian counterpart to downplay these unofficial exploits.¹⁸ Consequently, the incident did not generate any backlash in Canadian circles, and the two countries continued to hold bilateral meetings seeking a mutually acceptable solution. Technical discussions also reflected the results of modern satellite imagery, which placed the island in the middle of Nares Strait, eighteen kilometres from both Ellesmere Island and Greenland (and not closer to Canada, as Canadian maps had previously indicated).¹⁹

Commentators noted various diplomatic options for resolving this dispute. Canada and Denmark might have agreed to have one country gain complete sovereignty over the island; although the simplest solution, it was politically unattractive to both sides. Alternatively, the island could simply be split by connecting the lines currently demarcating Nares Strait, which would result in roughly half of the island going to each party, thus creating a new land border for both countries. Others proposed less conventional solutions, such as creating an international park or a “condominium” arrangement whereby Canada and the Kingdom of Denmark/Greenland would co-own the island with certain rules.²⁰ Former premier of Greenland and current Inuit Circumpolar Council (ICC) Greenland president Kuupik Kleist promoted Inuit ownership, lamenting that the Canadian and Danish states did not provide solutions in the interests of Nunavut and Greenland – a sentiment that he reiterated after the agreement was signed in June 2022, arguing that this was a missed opportunity to do something novel in terms of solving border disputes more in line with Inuit preferences.²¹ Others suggested simply ceding power to the Inuit of Nunavut and Greenland to co-manage the island as part of the Pikialasorsuaq (North Water Polynya) area,²² or Canada “gifting it” to the people of Greenland.²³

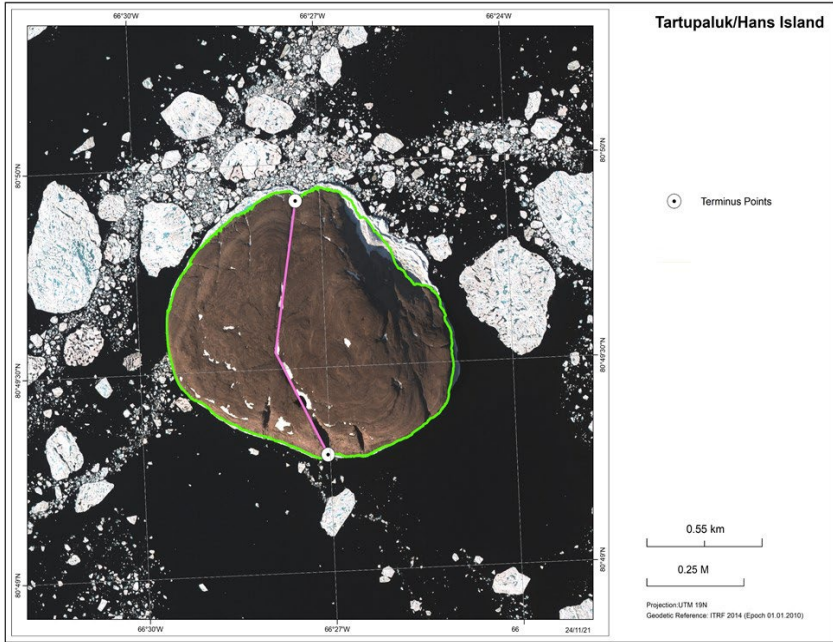
A negotiated solution requires political will, and the optics of surrendering sovereign territory – however small and insignificant in practical terms – created political sensitivities for countries that had publicly staked their sovereignty claims. “A plan to divide the island ... through the middle would give Canada a second foreign land border and settle a spat that captured international attention as much for its absurdity as its potential seriousness,” journalist Adrian Humphreys noted in April 2012. Nevertheless, as Canadian Foreign Affairs spokesperson Joseph Lavoie noted at the time, “the dispute continues to be well-managed in accordance with the 2005 Joint Statement on Hans Island. Canada and

Denmark have excellent relations and we are satisfied with how our current arrangement is working.”²⁴ Given the excellent relations and stability between the two countries, there was no acute pressure to settle the dispute.

The tenth anniversary of the Ilulissat Declaration in May 2018 (and the Arctic states’ affirmation of their commitment to maintaining the Arctic as a low-tension region where disputes are resolved peacefully) proved to be a catalyst for action on the Hans Island file. During a meeting later that month in Ottawa, officials from Copenhagen and Nuuk announced that they were setting up a joint task force to explore options and provide recommendations on how to officially resolve outstanding boundary issues in the Arctic with Canada. Statements by the Canadian and Danish foreign ministers emphasized collaboration and a commitment to “peaceful and constructive” deliberations. “Canada is looking forward to fruitful bilateral discussions with the Kingdom of Denmark under this newly established Task Force,” Global Affairs Canada spokesperson Elizabeth Reid told reporters. “This work is a demonstration of our excellent cooperation with Denmark in the Arctic and our collective leadership in the region.”²⁵

The task force held intensive in-person negotiations in 2018 and 2019 before converting to a virtual format in 2020 and 2021 owing to pandemic-related travel constraints. As the chief negotiators recounted during a panel at the Arctic Circle Forum in Nuuk in August 2022, the transition to a virtual format facilitated weekly (and at times even daily) meetings to work methodically through technical details. They emphasized how the friendly relations and close cooperation that characterize the Canada-Denmark-Greenland relationship proved instrumental,²⁶ culminating in a five-day “marathon” final meeting in Reykjavík in November 2021. Three days of legal and technical discussions were followed by two days of intensive legal negotiations that yielded an agreement-in-principle.²⁷ After receiving political approval in the various political capitals, this “3-in-1” agreement was officially signed in Ottawa on 14 June 2022.

The agreement sets a land boundary on Hans Island/Tartupaluk that follows a natural ravine that runs the length of the island, in a general direction from north to south, and divides the island roughly in half. This yields an outcome where the Kingdom of Denmark/Greenland has

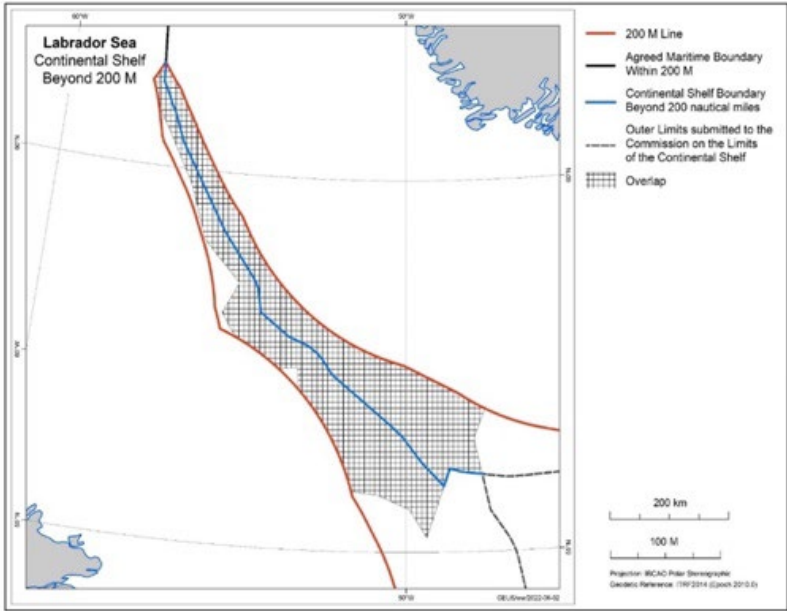


sovereignty over slightly more of the island than Canada, but adopting a natural contour with clear northern and southern terminus points and a turning point in the middle of the island offered an equitable compromise requiring only three coordinates to establish the land boundary. Discussions with local Greenlandic and Nunavummiut partners may determine what form a marker might take to physically situate the turning point – or whether one is necessary at all.²⁸

While the setting of a boundary reflects conventional state practice and divides a part of Inuit Nunaat (the Inuit homeland that transcends state boundaries), the agreement also includes an innovative provision that is reflective of Inuit priorities by affirming the “traditional, symbolic and historic significance” of the island. The deal commits all parties to maintaining continued access to and freedom of movement on the entire island for Inuit and local people living in Avanersuaq, Kalaallit Nunaat, and Nunavut, Canada, including for hunting, fishing, and other related cultural, traditional, historic, and future activities.²⁹ A practical and workable border-implementation regime for all visitors must still be devised, but the negotiators were particularly proud of achieving an outcome that ensures mobility rights and means that “there will be no fences on the island.”³⁰

Although most media attention fixated on the Hans Island agreement, the negotiations actually yielded a broader package deal that covers continental shelf issues, an arguably more important part of the bargaining solution than sovereignty over Hans Island.³¹ The negotiations also modernized the 1973 boundary within two hundred nautical miles and established the maritime boundary in the Lincoln Sea (north of Ellesmere Island and Greenland). The 1973 bilateral treaty establishing a dividing line between Greenland and Canada went as far as, but did not include, the Lincoln Sea (which is north of Ellesmere Island and Greenland).³² Although Canadian and Danish negotiators reached a tentative agreement on the maritime boundary in the Lincoln Sea in 2012,³³ it was never finalized. The 2022 deal thus completes the process of making technical adjustments to the coordinates of the existing maritime boundary line from 1973 and establishes a single, modernized four-thousand-kilometre maritime boundary from the Lincoln Sea in the north to the Labrador Sea in the south – the longest continuous maritime boundary in the world. As a Danish negotiator explained, a strong commitment to resolving all three issues simultaneously opened space for creative solutions and compromise, rooted in a high level of trust and openness both politically and in the technical and legal delegations.³⁴

Moreover, the June 2022 agreement settles an approximately seventy-nine-thousand-square-kilometre overlap in the continental shelf beyond two hundred nautical miles in the Labrador Sea. The Kingdom of

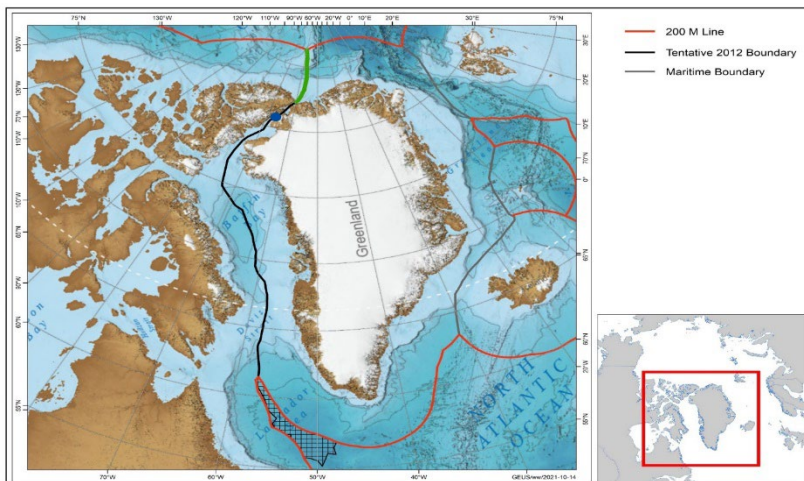


Denmark's 2012 submission and Canada's 2013 submission to the UN Commission on the Limits of the Continental Shelf (CLCS) revealed an overlapping area of continental shelf, which is a normal part of the scientific process of delineating the outer limits of the continental shelf under the United Nations Convention on the Law of the Sea (UNCLOS). The negotiations from 2018-21 yielded a binding boundary line in the overlapping area, which represents an equitable solution consistent with Article 83 of UNCLOS. Reaching an agreement prior to receiving a recommendation from the CLCS also follows regional practice³⁵ and international law, and it further affirms Ilulissat Declaration commitments to the orderly, peaceful settlement of overlapping claims amongst the Arctic coastal states.

While the deal reached between the Kingdom of Denmark/Greenland and Canada might seem modest, it sends an important signal at a volatile time in regional and international affairs. Dignitaries at the June 2022 announcement in Ottawa emphasized various strategic messages. "The Arctic is a beacon for international cooperation, where the rule of law prevails," Canadian foreign minister Mélanie Joly noted, with obvious reference to the precarious geopolitical climate in the wake of Russia's further invasion of Ukraine in February 2022. "As global security is being threatened, it's more important than ever for democracies like Canada and the Kingdom of Denmark to work together alongside Indigenous peoples, to resolve our differences in accordance with international law." Her Danish counterpart, Jeppe Kofod, emphasized how the sovereignty of Hans Island/Tartupaluk has been contested for more than a half-century, but diplomatic efforts yielding a solution "demonstrate our firm common commitment to resolve international disputes peacefully. I hope that our negotiation and the spirit of this agreement may inspire others. This is much needed at a time when respect for the international rules-based order is under pressure." For the Greenlandic premier, Múte B. Egede, the land border on Hans Island/Tartupaluk was not a sign of division but of "the very close ties between our countries, people and culture," marking the "beginning of a closer partnership and cooperation between us in areas of shared interest and of particular benefit to Inuit and local people living in Avanersuaq, Kalaallit Nunaat, and Nunavut, Canada."³⁶ In his opening speech to the Greenlandic parliament, Inatsisartut, in September 2022, he stressed how a peaceful solution was obtained in a time of geopolitical conflict in the Arctic.³⁷

When Russia and Norway signed their historic maritime delimitation and cooperation agreement in the Barents Sea and Arctic in September 2010,³⁸ foreign ministers Sergei Lavrov and Jonas Gahr Støre told Canada

to “take note” and paternalistically instructed Ottawa to follow their lead. “We firmly believe that the Arctic can be used to demonstrate just how much peace and collective interests can be served through the implementation of the international rule of law,” they explained. “Moreover, we believe that the challenges in the Arctic should inspire momentum on international relations, based on cooperation rather than rivalry and confrontation.”³⁹ Twelve years later, Canada and the Kingdom of Denmark/Greenland sent a similar reminder to the Kremlin, taking the signing of their historic agreement as an opportunity to emphasize how they are “close, like-minded partners committed to democratic principles, including the rule of law and gender equality. We work closely to support multilateralism and the rules-based international order, to protect human rights, minorities, Indigenous peoples and to safeguard democracy.”⁴⁰ In contrast to Russia’s brutal tactics attempting to redraw boundaries in Europe, the solution was presented as a win-win-win outcome by the Canadian foreign minister, Mélanie Joly,⁴¹ which was echoed by a Greenlandic negotiator at the Arctic Circle Forum in Nuuk in August 2022. “From the Lincoln Sea in the north to the Labrador Sea in the south, the line is the longest continuous maritime boundary in the world,” a Global Affairs Canada news release trumpeted. “This agreement is a testament to our excellent relations, and it demonstrates our commitment to the rules-based international order and in maintaining our shared ambition of the Arctic as a region of low tension and cooperation.”⁴² These messages remain crucial as Arctic coastal states look to settle their overlapping continental shelves in the central Arctic Ocean⁴³ – a process that, we hope, will also reinforce common interests in peace, stability, compromise, and cooperation.



Notes

Thanks to the presenters and audience members during the panel on “The Historic Agreement on Tartupaluk (Hans Island), Lincoln Sea and Labrador Sea: Insights from the Negotiators” at the Arctic Circle Forum in Nuuk, Greenland, on 28 August 2022, for their information and insights.

¹ Martin Breum, “Analysis: Hans Island - and the endless dispute over its sovereignty,” *High North News*, 28 May 2018, <https://www.highnorthnews.com/en/analysis-hans-island-and-endless-dispute-over-its-sovereignty>.

² Global Affairs Canada, “Canada and the Kingdom of Denmark, together with Greenland, reach historic agreement on long-standing boundary disputes,” News Release, 14 June 2022, <https://www.canada.ca/en/global-affairs/news/2022/06/canada-and-the-kingdom-of-denmark-together-with-greenland-reach-historic-agreement-on-long-standing-boundary-disputes.html>.

³ For example, Canada’s *Northern Strategy* (2009) observed that “Canada’s sovereignty over its Arctic lands and islands is undisputed, with the exception of Hans Island, which is claimed by Denmark.” See Department of Indian Affairs and Northern Development, *Canada’s Northern Strategy*, reproduced in P. Whitney Lackenbauer and Ryan Dean, eds., *Canada’s Northern Strategy under Prime Minister Stephen Harper: Key Speeches and Documents on Sovereignty, Security, and Governance, 2006-15* [Documents on Canadian Arctic Sovereignty and Security (DCASS) No. 6] (Calgary and Waterloo: Centre for Military, Security and Strategic Studies/Centre on Foreign Policy and Federalism/Arctic Institute of North America, 2016), 104.

⁴ *Agreement between the Government of Canada and the Government of the Kingdom of Denmark relating to the delimitation of the continental shelf between Greenland and Canada*, in force on 13 March 1974, Canada Treaty Series (CTS) 1974/9. See Article 2, para. 4, and Annex 4.

⁵ Kenn Harper, “Hans Island Rightfully Belongs to Greenland, Denmark,” *Nunatsiaq News*, 9 April 2004; Canadian Broadcasting Corporation (CBC) News, “Canada, Denmark agree to resolve dispute over Arctic island,” 19 September 2005, <http://www.cbc.ca/news/world/canada-denmark-agree-to-resolve-dispute-over-arctic-island-1.551223>; and Rob Huebert, “Return of the ‘Vikings’: The Canadian-Danish dispute over Hans Island – new challenges for the control of the Canadian North,” in *Breaking Ice: Renewable Resource and Ocean Management in the Canadian North*, eds. Fikret Berkes, Rob Huebert, Helen Fast, Micheline Manseau, and Alan Diduck (Calgary: University of Calgary Press, 2005), 319-36.

⁶ Peter R. Dawes, “Hans Hendrik og Pantherekspeditionen, 1869,” *Tidsskriftet Grønland*, no. 6 (1987): 191-218; Poul Kristensen, “Hans Island: Denmark Responds,” letter to the editor, *Ottawa Citizen*, 28 July 2005. Fiskerisøen is today known by its Greenlandic name, Qeqertarsuaq. The “discovery” and the life of Hans is covered in the Dawes text (in Danish) and elaborated in Jan Løve, “Hans Hendrik og Hans Ø” (Copenhagen: Det Grønlandske Selskab, 2016).

⁷ Milton Freeman, *Inuit Land Use and Occupancy Project: Report* (Ottawa: Ministry of Supply and Services, 1976); Peter R. Dawes, “Hans Ø og Hans Ø,” *Grønland* 2 (1985): 47-59.

⁸ Department of External Affairs, “Canadian Sovereignty Over Hans Island,” circa January 1953, file S99-2-11 pt. 1, released under Access to Information (ATIP) A-2019-11504.

⁹ Indeed, the topographic maps that Canada used in 1967 to determine the island's coordinates when negotiating the 1973 treaty have proven inaccurate compared with satellite imagery gathered in the twenty-first century. See, for example, Canadian Press, "Satellite imagery moves Hans Island boundary: report," 26 July 2007, <https://www.cbc.ca/news/science/satellite-imagery-moves-hans-island-boundary-report-1.684285>.

¹⁰ "Canada stirs up Arctic dispute again," 5 April 2019, clip on file at Global Affairs Canada, released under Access to Information (ATIP) A-2019-00529.

¹¹ Huebert, "Return of the 'Vikings'"; Mark Walker, "Hans off our island!," *Copenhagen Post*, 19 January 2016, <https://cphpost.dk/?p=100311>.

¹² In 2000, a team of scientists from the Geological Survey of Canada mapped the island and took geological samples. Canadian sources also suggest that the geological and geomorphological evidence cited by Denmark is relevant only when claiming continental shelf and not islands, where the test is effective occupation.

¹³ Huebert, "Return of the 'Vikings.'" A plain language summary is available at https://umanitoba.ca/institutes/natural_resources/canadaresearchchair/Breaking%20Ice%20Renewable%20Resource%20and%20Ocean%20Management%20in%20the%20Canadian%20North,%20Plain%20Language%20Version.pdf. See also Rob Huebert, "Denmark's gunboat diplomacy over Hans Island a warning for future Arctic conflicts," *National Post*, 15 June 2022, <https://nationalpost.com/opinion/rob-huebert-denmarks-gunboat-diplomacy-over-hans-island-a-warning-for-future-arctic-conflicts>.

¹⁴ Canadian Press, "Satellite imagery moves Hans Island"; Bill Graham, *The Call of the World: A Political Memoir* (Vancouver: UBC Press, 2016). When Danish representative Svend Roed Nielsen told the *National Post* that his government was trying to "keep our ammunition dry" in the dispute, Canada's minister of foreign affairs told Parliament, "I can assure this House, this government will not surrender any sovereignty of any of Canada's lands in the Arctic or anywhere else in the world." Media coverage prompted a rally in front of a Danish consulate by protesters declaring "We Eat Danish for Breakfast." Adrian Humphreys, "New proposal would see Hans Island split equally between Canada and Denmark," *National Post*, 11 April 2012, <https://nationalpost.com/news/canada/new-proposal-would-see-hans-island-split-equally-between-canada-and-denmark>.

¹⁵ Rob Huebert, "Who Owns the Arctic?," *The Agenda* with Steve Paikin, TV Ontario, broadcast on 29 September 2008. On media coverage, see Mathieu Landriault, *La sécurité arctique 2000-2010 : Une décennie turbulente?* (Peterborough: North American and Arctic Defence and Security Network, 2020), 98-125; and Landriault, "Arctic Security and Sovereignty through a Media Lens: From a Pile of Frozen Rocks to the Bottom of the Sea," in *Breaking Through: Understanding Sovereignty and Security in the Circumpolar Arctic*, eds. Wilfrid Greaves and P. Whitney Lackenbauer (Toronto: University of Toronto Press, 2021), 62-79. See also Kristensen, "Hans Island: Denmark Responds."

¹⁶ Nils Wang, *Sikkerhedspolitik i Arktis: en ligning med mange ubekendte*, Copenhagen: Atlantsammenslutningen – forum for sikkerhedspolitik (January 2012).

¹⁷ Canada–Denmark Joint Statement on Hans Island, 19 September 2005. In 2008, the two countries cooperated in setting up an automatic weather station on the island to measure atmospheric conditions in Nares Strait, which connects the Arctic Ocean with the North Atlantic Ocean and thus plays a key role in the global hydrologic cycle. J.P. Wilkinson, P. Gudmandsen, S. Hanson, R. Saldo, and R.M. Samelson, "Hans Island: Meteorological Data From an International Borderline," *Eos* 90, no. 22 (2 June 1990):

190-91. See also Humfrey Melling, Tom A. Agnew, Kelly K. Falkner, David A. Greenberg, Craig M. Lee, Andreas Münchow, Brian Petrie, Simon J. Prinsenberg, Roger M. Samelson, and Rebecca A. Woodgate, "Fresh-Water Fluxes via Pacific and Arctic Outflows Across the Canadian Polar Shelf," in *Arctic-Subarctic Ocean Fluxes: Defining the Role of the Northern Seas in Climate*, eds. Robert R. Dickson, Jens Meincke, and Peter Rhines (Dordrecht: Springer, 2008), 193-247.

¹⁸ Breum, "Analysis: Hans Island - and the endless dispute over its sovereignty." See also Albatros Expeditions, "The Dispute of Hans Island: A Tale of Canadian and Danish Diplomacy," <https://albatros-expeditions.com/inspiration/dispute-hans-island>.

¹⁹ Canadian Press, "Satellite imagery moves Hans Island"; CBC News, "Canada, Denmark continue talks on Hans Island," 12 April 2012, <https://www.cbc.ca/news/canada/north/canada-denmark-continue-talks-on-hans-island-1.1254470>.

²⁰ For example, in 2015, international legal scholar Michael Byers and Professor Michael Böss of Aarhus University proposed that Canada and Denmark should share sovereignty and jurisdictional responsibility over the island, appointing a joint commission to settle governance issues where required. Bob Weber, "Experts say Canada, Denmark should share control of Arctic island," *Globe and Mail*, 11 November 2015; Tarik Kehli, "En mulig løsning på Hans Ø-konflikten i sigte?," *Magasinet Europa*, 8 December 2015, <https://magasineteuropa.dk/en-mulig-loesning-paa-hans-oe-konflikten-i-sigte/>.

²¹ Marie Kùitse Kristensen, "Kuupik V. Kleist: Inuit bør eje Tartupaluk, ikke staterne," Kalaallit Nunaata Radioa, 16 June 2022, <https://knr.gl/da/nyheder/kuupik-v-kleist-inuit-b%C3%B8r-eje-tartupaluk-ikke-staterne>.

²² See, for example, Canada, Special Senate Committee on the Arctic, *Northern Lights: A Wake-Up Call for the Future of Canada* (June 2019), 112.

²³ Adam Lajeunesse and Heather Exner-Pirot, "Hans Island: A Housewarming Gift?" (June 2018), <http://northernmaritime.ca/wp-content/uploads/2018/06/Hans-Island-3.pdf>.

²⁴ See, for example, Humphreys, "New proposal would see Hans Island split equally."

²⁵ Levon Sevunts, "Canada and Denmark set up joint task force to resolve Arctic boundary issues," *Eye on the Arctic*, 23 May 2018, <https://www.rcinet.ca/eye-on-the-arctic/2018/05/23/greenland-canada-hans-island-sea-boundary/>; Christian Wenande, "Denmark and Canada look to resolve border issue," *Copenhagen Post*, 24 May 2018, <https://cphpost.dk/?p=100311>; and Sevunts, "Hans Island: a housewarming gift for Greenland?," *Eye on the Arctic*, 18 June 2018, <https://www.rcinet.ca/eye-on-the-arctic/2018/06/18/hans-island-housewarming-gift-greenland/>.

²⁶ For example, negotiations did not go off the rails when, in early April 2019, Canada issued a prospecting permit to mining geologist John Robins, who admitted that his primary purpose was to "stir the pot" and press Canada to assert its sovereignty. Bob Weber, "'Bit of a lark': Canadian miner files claim on disputed Arctic island," Canadian Press, 4 April 2019; Martin Breum, "New Dispute Illustrates What is in the Waiting at the North Pole," 23 April 2019, newspaper clip released under Access to Information (ATIP) A-2019-00529. The Government of Canada, however, explained to Robins that a negotiated agreement between the Kingdom of Denmark and Canada "could affect any rights acquired under the Nunavut Mining Regulations in relation to the permit area," and that Robins would have to provide advance notice of any activities on the island "to ensure that Canada has the opportunity to properly inform the Kingdom of Denmark" pursuant to the 2005 Joint Declaration. Erik Allain, Director

of Lands, Crown-Indigenous Relations and Northern Affairs Canada, to John Robins, 4 February 2019, released under Access to Information (ATIP) A-2019-00529. The next day (5 February 2019), the Canadian legal advisor informed his Danish counterpart that Canada had issued the permit. Robins had secured a similar permit in 2006 and did not act upon it.

²⁷ “The Historic Agreement on Tartupaluk (Hans Island), Lincoln Sea and Labrador Sea: Insights from the Negotiators,” panel at the Arctic Circle Forum, Nuuk, 28 August 2022.

²⁸ “Historic Agreement on Tartupaluk (Hans Island), Lincoln Sea and Labrador Sea” panel.

²⁹ Global Affairs Canada, “Canada-Kingdom of Denmark joint statement on bilateral cooperation,” 14 June 2022, <https://www.canada.ca/en/global-affairs/news/2022/06/canada-kingdom-of-denmark-joint-statement-on-bilateral-cooperation.html>.

³⁰ “Historic Agreement on Tartupaluk (Hans Island), Lincoln Sea and Labrador Sea” panel.

³¹ Ivik Kristiansen and Bibi Nathansen, “Forsker: Delingen af Hans Ø er symbolsk - det spændende ligger i havet syd for Grønland,” Kalaallit Nunaata Radioa, 20 June 2022, <https://knr.gl/da/nyheder/forsker-delingen-af-hans-%C3%B8-er-symbolsk-det-sp%C3%A6ndende-ligger-i-havet-syd-gr%C3%B8nland>.

³² There was disagreement concerning whether you could count a small island (Beaumont Island) as a base point on the Greenland side, which was resolved when Denmark modified its method. Michael Byers and Andreas Østhagen, “Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?,” *Canadian Yearbook of International Law/Annuaire canadien de droit international* 54 (2017): 28-31.

³³ Department of Foreign Affairs and International Trade, “Canada and Kingdom of Denmark Reach Tentative Agreement on Lincoln Sea Boundary,” News Release, 28 November 2012.

³⁴ “Historic Agreement on Tartupaluk (Hans Island), Lincoln Sea and Labrador Sea” panel.

³⁵ For example, the Kingdom of Denmark, Iceland, and the Faroe Islands reached a political understanding in 2006 prior to their submission to the CLCS three years later, and they signed three continental shelf delimitation agreements in 2019. Government of the Faroe Islands, “Historic agreement expands Faroese continental shelf area,” 9 December 2019, <https://www.faroeislands.fo/the-big-picture/news/historic-agreement-expands-faroese-continental-shelf-area/>.

³⁶ Global Affairs Canada, “Canada and the Kingdom of Denmark, together with Greenland, reach historic agreement.”

³⁷ Múte B. Egede, “Múte: Inuusuttut nukittuut takorluuisinnaasut kissaatigaakka,” 23 September 2022, https://naalakkersuisut.gl/nyheder/2022/09/2309_aabningstale?sc_lang=kl-gl.

³⁸ See Øystein Jensen, “The Barents Sea: Treaty between Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean,” *International Journal of Marine and Coastal Law* 26, no. 1 (2011): 151-68.

³⁹ Sergei Lavrov and Jonas Gahr Støre, “Canada, take note: Here’s how to resolve maritime disputes,” *Globe and Mail*, 21 September 2010.

⁴⁰ Statements also affirmed how “the ongoing and historical links fostered by Inuit in both Greenland and Canada provide opportunities to strengthen cooperation, between

the two countries' governments, including in areas of culture, mobility and transport, natural resources, and sustainable development through trade and infrastructure." Global Affairs Canada, "Canada-Kingdom of Denmark joint statement."

⁴¹ "Canada ser deling af Hans Ø og hav som en sejr for alle parte," *Politiken*, 14 June 2022, <https://politiken.dk/udland/art8829844/Canada-ser-deling-af-Hans-%C3%98-og-hav-som-en-sejr-for-alle-parter>.

⁴² Global Affairs Canada, "Canada-Kingdom of Denmark joint statement."

⁴³ On extended continental shelf delimitation processes, see Klaus Dodds, "Flag planting and finger pointing: The Law of the Sea, the Arctic and the political geographies of the outer continental shelf," *Political Geography* 29, no. 2 (2010): 63-73; Michael Byers, *International Law and the Arctic* (Cambridge: Cambridge University Press, 2013); Elizabeth Riddell-Dixon, *Breaking the Ice: Canada, Sovereignty, and the Arctic Extended Continental Shelf* (Toronto: Dundurn, 2017); and Andreas Østhagen and Clive Schofield, "An ocean apart? Maritime boundary agreements and disputes in the Arctic Ocean," *Polar Journal* 11, no. 2 (2021): 317-41.

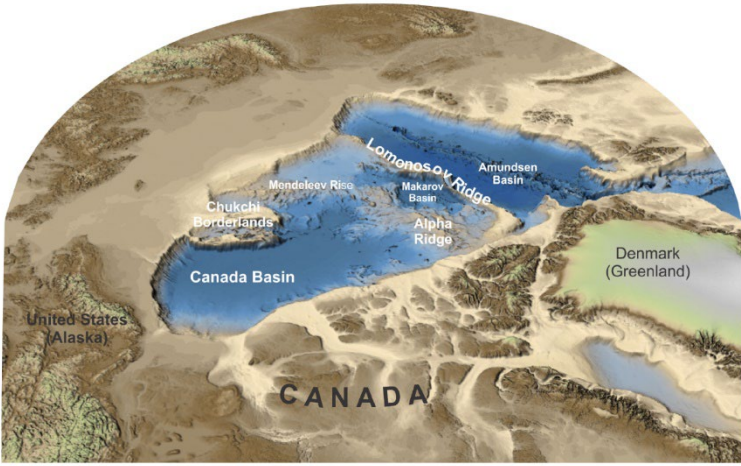


Figure 15.1: The morphology of the seabed in the Amerasia Basin in the Arctic Ocean.

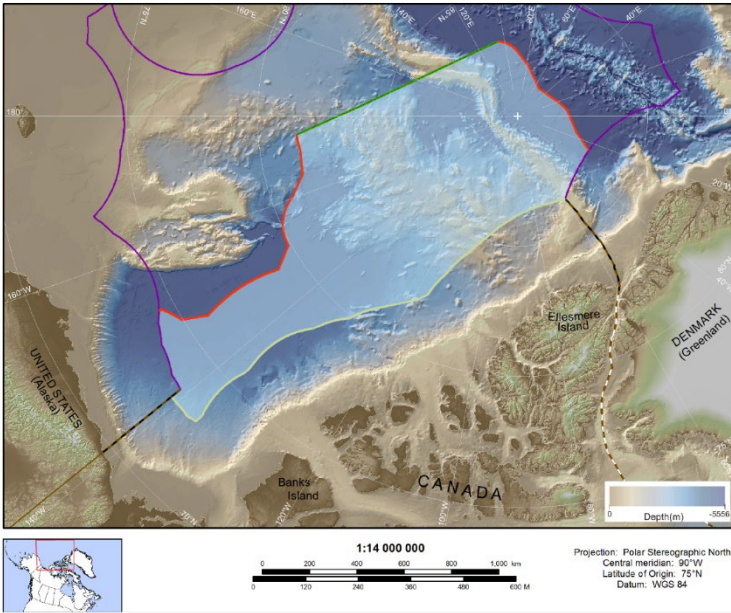


Figure 15.2: Canada's Arctic extended continental shelf.

Source: Government of Canada, *Canada's Partial Submission to the Commission on the Limits of the Continental Shelf in Respect of its Continental Shelf in the Arctic Ocean*, Executive Summary (2019), 14, 16.

15

“Natural Prolongation” and Canada’s Arctic Extended Continental Shelf: Cooperating to Make Sense of the Law, the Science, and the Facts

Kristin Bartenstein and Laure Gosselin*

Introduction

On 23 May 2019, Canada filed a submission with the Commission on the Limits of the Continental Shelf (CLCS) concerning its extended continental shelf in the Arctic Ocean, covering an area of approximately 1.2 million square kilometres (see Figures 15.1 and 15.2).¹ This submission marks the culmination of years of research and the start of the international procedure provided for by the *United Nations Convention on the Law of the Sea (UNCLOS)* to scientifically validate the delineation, i.e., the determination of the outer limits, of Canada’s proposed extended continental shelf.²

The continental shelf regime is set out in Part VI of *UNCLOS*. Article 77 grants the coastal State sovereign rights over its continental shelf for the purpose of exploring and exploiting its natural resources.³ The continental shelf belongs by right to the coastal State,⁴ irrespective of the determination of its outer limit. According to Article 76, every State is entitled to a continental shelf two hundred nautical miles wide measured from the baselines, but if the outer edge of the continental margin extends

* Originally published in French in *Canadian Yearbook of International Law/Annuaire canadien de droit international* 58 (2021): 48-77. Translated into English by Whitney Lackenbauer.

beyond two hundred nautical miles, the coastal State may claim an “extended” continental shelf.⁵ Article 76 sets out the rules to determine the outer limit of the extended continental shelf.⁶ It also sets out the assessment procedure before the CLCS.⁷

The legal concept of the continental shelf has its origins in the oceanographic sciences. Consequently, the *UNCLOS* definition of the extended continental shelf is imbued with references to scientific terms. As a result, the interpretation and application of Article 76 intersects with fundamental legal and scientific debates. These exchanges remain fluid, both because scientific knowledge is constantly advancing and because each continental shelf is an individual case that requires legal and scientific categories to be re-examined in light of new facts. The fluidity is such that it is possible to put forward the hypothesis (which is, admittedly, impossible to verify) that the CLCS’s assessment of the same case a few years apart may not lead to the same conclusions because of changes in scientific knowledge and requirements. The fact remains that relatively stable understandings are forged by intersecting epistemic communities.⁸

The determination of the outer limits of the continental shelves in the Arctic is therefore the result of an interpretation of *UNCLOS* in which scientific and legal arguments are interwoven with regard to a singular geophysical situation. From this perspective, we attempt to discern how Canada has dealt with the threefold interpretation underlying the Canadian submission, namely the interpretation of the legal rules set out in Article 76 of the Convention, the scientific categories to which these rules refer, and the geophysical phenomena of the Arctic seabed. We argue that this interpretative process presents challenges as well as opportunities that Canada has seized by actively engaging in the production of a scientific consensus and the construction of a legal argument in support of the delineation of its extended continental shelf.

We seek to clarify these issues by analyzing the concept of “natural prolongation.” This concept lies at the heart of the extended continental shelf regime insofar as Article 76(1) of *UNCLOS* describes the extended continental shelf as the “*natural prolongation* of [the] land territory” of the coastal State.⁹ The concept of natural prolongation raises several questions. To what phenomenon does it refer? Does it formulate a legal criterion for the connectedness of the continental shelf? If so, how would such connectedness be established? Would it be of a special nature for submarine elevations that are natural components of the continental margin referred to in paragraph 6 of Article 76?

We present various responses that the scientific and legal communities have given to these questions, while highlighting uncertainties that

remain. We also look at how Canada has participated in the co-construction of scientific and legal consensus on these issues in order to ensure that the understanding of the continental shelf conveyed in the epistemic communities, including the CLCS, is favourable to it. It seems appropriate, however, first to highlight the intersubjective nature of the interpretative activities engaged in by States and the scientific community during the scientific delineation assessment procedure before the CLCS.

Delineation: A Legal, Scientific, and Factual Interpretation

Article 76 is notable for its many references to scientific categories relating to the morphology and geology of the seabed. It requires States to collect and interpret bathymetric, seismic, magnetic, gravimetric, and tectonic data in order to determine the origin, age, structure, depth, and composition of the seabed, and thus establish the limits of their continental shelf. However, the continental shelf is first and foremost a legal category: there is indeed a gap between the continental shelf of the lawyer and the phenomenon studied by the geophysicist.¹⁰ This gap has widened alongside the advancement of scientific knowledge since the adoption of *UNCLOS* in 1982. In practice, determining the limits of the extended continental shelf is far from a simple mechanical operation. Assessing complex geophysical phenomena by reference to uncertain legal and scientific categories creates a threefold challenge of legal, scientific, and factual interpretation. It also opens up a space that is conducive to the co-construction of an understanding of these elements.

The CLCS plays a particularly important role in this context. It is, of course, up to the coastal State to set the outer limits of its continental shelf.¹¹ In the case of an extended continental shelf, however, the CLCS contributes, through its recommendations, to interpretations that the coastal State must take into account when preparing its submission. Made up of experts in geology, geophysics, or hydrography (and not lawyers),¹² the Commission has an advisory rather than a decision-making role. Therefore, it can support the coastal State in the delineation of its continental shelf and provide scientific and technical advice, if requested by the coastal State.¹³ Its main task, however, is to “consider the data and other material submitted by coastal States” and to “make recommendations.”¹⁴ Accordingly, the CLCS carries out a scientific assessment of the delineation proposed by the coastal States and, in the best case, recommends that they set the limits as proposed or with minor modifications. Article 76 states that “the limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.”¹⁵ Quite apart from the question of whether this power of recommendation gives the CLCS a mandate with normative scope,¹⁶ there

is consensus that its real role is to legitimize the choices made by the coastal State through an international process of scientific evaluation.¹⁷ Indeed, a “presumption of validity” accompanies the limits set on the basis of a CLCS recommendation.¹⁸

Although the Commission has adopted Scientific and Technical Guidelines (Guidelines)¹⁹ to “clarify its interpretation of scientific, technical and legal terms contained in the Convention,”²⁰ uncertainties remain, and a complex work of interpretation is carried out within the framework of the procedure before the CLCS. In this context, one traditional view attributes to the CLCS an authority based on a rational conception of science: its experts proceed in a supposedly objective and neutral manner to analyze the data, interpretations, and conclusions submitted by the coastal State. This “positivist”²¹ view of the Commission’s work seems to us to be a reductive, if not distorted, portrait of how it operates. Instead, we submit that the Commission’s work should be considered an intersubjective process in which many stakeholders participate in co-constructing the meaning of legal terms, scientific categories, and geophysical phenomena.

Recognition for the scientific validity of a given delineation is achieved through the collaboration of scientists from various States, networks, and epistemic communities who negotiate among themselves the scientific knowledge deemed relevant in the light of the facts of the specific case and the applicable legal rules. The interaction between the CLCS, the wider scientific community, and States yields a “managed consensus” that is actively pursued at international levels.²²

Accordingly, we analyze certain salient elements of Canada’s submission against the backdrop of an intersubjective understanding of the interpretative activity engaged in by the actors involved in the proceedings before the CLCS. Rooted in scepticism about the very possibility of a purely rational approach in scientific as well as legal endeavours, our understanding is shaped by constructivist approaches in the social sciences and hermeneutical perspectives on law. According to the constructivist approach developed by international relations theorists,²³ international reality is largely determined by cognitive processes based on ideas, norms, knowledge, culture, and arguments shared by the actors and forming intersubjective convictions.²⁴ In order to understand State interests and behaviour, international structures are investigated not as structures of power but as structures of “social meaning and value.”²⁵ By capturing the social processes that shape the creation and operation of international law,²⁶ this approach fosters an

understanding of law that is sociologically rich and historically grounded.²⁷

Focusing on legal interpretations, our analysis of the Canadian submission has no empirical ambitions but is of a classic doctrinal nature. Being aware, however, of the intersubjective nature of the interpretations that emanate from the processes in which the actors together forge their understanding of the legal and scientific concepts at stake, it aims to avoid the intellectual shortcomings of methodical formalism associated with legal positivism. Acknowledging that it is impossible to deduce the legal consequences of a given situation logically and purely rationally from established norms, legal hermeneutics sees the law more as a dynamic and iterative process of determining – or, in constructivist terminology, “constructing” – meaning. This process is certainly based on the legal text, but it accounts for its living and historical context, of which the interpreter is himself a part.²⁸ According to this approach, law emerges from the juridical attempt to make the state of facts and the legal norm converge;²⁹ it thus emerges from a fundamentally “creative” work of interpretation.³⁰ The legal rule and the facts are not seen as constants but as the fruit of interpretations – mental constructs shaped by feedback loops between the rule, the facts, and other factors influencing the interpreter’s reading. As a philosophy of understanding, hermeneutics is not exclusive to the interpretation of texts. Scientific understanding of the geophysical phenomenon that is the extended continental shelf is constructed in a similar way, i.e., “through *intersubjectivity* and *consensus* between stakeholders.”³¹

The independent scientific assessment procedure before the CLCS, which is embedded in the law governing continental shelves, encourages the various players involved to work together to determine the meaning of scientific categories, legal rules, and specific geophysical phenomena. Canada has taken advantage of the interpretative space offered by this procedure, in particular with the aim of actively building consensus in favour of its interpretations. Without seeking to assess the scientific validity of the Canadian submission, we contextualize the interpretations that Canada has adopted by exploring the meaning attributed to the legal framework and to the scientific concepts to which this framework refers, as well as outlining the processes that have enabled these interpretations to emerge.

The “Natural Prolongation”

According to *UNCLOS* Article 76(1), the extended continental shelf of a coastal State “comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation

of its land territory to the outer edge of the continental margin." The expression "natural prolongation" refers to the basis of the coastal State's title and contains, according to well-established international practice, a legal criterion requiring the coastal State to demonstrate the appurtenance of the continental shelf under consideration to its land territory. The precise meaning of the criterion and, consequently, the nature of the scientific data used to prove it are a particular issue for the Canadian continental shelf, which has certain morphological discontinuities. Furthermore, the efforts made by the circumpolar States to establish natural prolongation are valuable with regard to the related concept of "submarine elevations that are natural components of the continental margin" in paragraph 6 of Article 76.

From the Description of a Physical Phenomenon to Legal Title

The role of the "natural prolongation" in the legal regime of the continental shelf has crystallized gradually. The first articulation of the concept of the continental shelf as the prerogative of the coastal State dates back to U.S. President Harry Truman's 1945 proclamation which defined it as "an extension of the land mass of the coastal nation and thus naturally appurtenant to it," while its resources "frequently form a seaward extension of a pool or deposit lying within the territory."³² This assertion refers to the geographical contiguity and geological continuity of the marine soil and subsoil with the land territory as the basis for the jurisdiction of the United States over the continental shelf and its resources.³³ In the 1958 *Convention on the Continental Shelf*, which translates the Truman concept into an international legal regime, this contiguity appears through the reference to "the seabed and subsoil of the submarine areas *adjacent to the coast*."³⁴

The term "natural prolongation," for its part, was coined by the International Court of Justice (ICJ) in the 1969 North Sea Continental Shelf cases. The Court held that "the right of the coastal State to its continental shelf areas is based on its sovereignty over the land domain, of which the shelf area is the *natural prolongation* into and under the sea."³⁵ During the *UNCLOS* negotiations, the continuity between the land territory and the continental shelf became one of the arguments used by coastal States bordering large continental shelves to claim sovereign rights extending to the outer edge of the continental margin. Paragraph 1 of Article 76 is largely the result of these claims.³⁶

The ICJ had the opportunity to rule on this provision, which was then part of the *UNCLOS* draft, as early as 1982. In a delimitation case between Tunisia and Libya, the Court considered that the natural prolongation of the land territory was, according to the first part of paragraph one, the

“main criterion,” supplemented by the criterion of distance, according to the second part of the paragraph.³⁷ In 1985, in another delimitation case, this time between Libya and Malta, the Court reiterated that “the concepts of natural prolongation and distance are therefore not opposed but complementary.”³⁸ A coastal State’s title to the continental shelf out to two hundred nautical miles, which is closely linked to its exclusive economic zone, is detached from the concept of natural prolongation and based exclusively on a criterion of distance.³⁹ Conversely, the “natural prolongation” and the geophysical characteristics of the seabed to which the expression refers form the basis of title to the extended continental shelf.⁴⁰ In this sense, the continental shelf in Article 76 appears to be a legal category with two facets, one rooted in the reality of the seabed and the other purely artificial.

The CLCS Guidelines take up these two distinct bases of title.⁴¹ A coastal State that can claim no more than a continental shelf whose title is based on distance need only ensure that the outer limit of that continental shelf is given due publicity.⁴² Since the procedure before the CLCS concerns the extended continental shelf, the Guidelines are mainly concerned with title based on the natural prolongation and delineation of an extended continental shelf.

From Legal Title to the Scientific Test of Appurtenance

According to the Guidelines, a coastal State wishing to determine the outer limits of its continental shelf beyond two hundred nautical miles must, in order to confirm its title, satisfy a “test of appurtenance.” This is “designed to determine the legal entitlement of a coastal State to delineate the outer limits of the continental shelf throughout the natural prolongation of its land territory to the outer edge of the continental margin.”⁴³ Satisfying the appurtenance test is an essential condition for establishing the outer limits of the continental shelf, as only

[i]f a State is able to demonstrate to the Commission that the natural prolongation of its submerged land territory to the outer edge of its continental margin extends beyond the 200-nautical-mile distance criterion, the outer limit of its continental shelf can be delineated by means of the application of the complex set of rules described in paragraphs 4 to 10.⁴⁴

In applying the test, the CLCS will use “the provisions contained in paragraph 4 [...] to determine whether a coastal State is entitled to delineate the outer limits of the continental shelf beyond 200 nautical miles.”⁴⁵ If the line determined in accordance with paragraph 4 is beyond two hundred nautical miles, “[t]he coastal State is entitled to delineate the

outer limits of the continental shelf as prescribed by the provisions contained in article 76, paragraphs 4 to 10.”⁴⁶ The uncertainty created by these formulations, which seem to amalgamate the establishment of title and the determination of the outer limits, has been highlighted.⁴⁷ However, the practice of the CLCS and States leaves no doubt that these are two distinct aspects. Title to the extended continental shelf is based on the concept of natural prolongation in paragraph 1; it does not depend on the determination of its outer limits, which is made on the basis of the formulae in paragraph 4.⁴⁸ The apparent contradiction in the Guidelines thus disappears on a second reading: the State may rely on geomorphological or geological data collected in accordance with the formulae in paragraph 4 and necessary for the delineation of its continental shelf to demonstrate that it extends beyond two hundred nautical miles. If the State succeeds in making this demonstration, it may fix the outer limits in accordance with paragraphs 4 to 10.

That the CLCS regards the “natural prolongation” of paragraph 1 as a criterion in its own right and distinct from the question of outer limits governed by paragraph 4 is clear from its recommendations concerning Ascension Island addressed to the United Kingdom in 2010.⁴⁹ The Commission considers that the island has a very restricted volcanic base⁵⁰ and is morphologically, geologically, geophysically, and geochemically distinct from the surrounding ocean floor.⁵¹ It maintains that the base of the slope zone is necessarily at the bottom of the volcanic edifice⁵² and not, as proposed by the United Kingdom, further out on the surrounding deep seabed forming the Mid-Atlantic Ridge, an oceanic ridge.⁵³ Therefore, the CLCS ruled that the points at the foot of the slope proposed by the United Kingdom were invalid on the grounds that they were not associated with the island’s continental margin.⁵⁴ The United Kingdom therefore failed to establish that the proposed continental shelf appertains to Ascension Island.⁵⁵ Consequently, the CLCS recommends that the United Kingdom should not establish the limits of the continental shelf of Ascension Island beyond two hundred nautical miles on the basis of the scientific data provided in its submission and subsequently.

While these conclusions from the CLCS highlighted the practical importance of the “natural prolongation” criterion in the process of determining the outer limits of the continental shelf, a delimitation decision by the International Tribunal for the Law of the Sea (ITLOS) raised doubts the same year. Bangladesh, in a case against Myanmar, argued that the notion of natural prolongation required the establishment of geological and geomorphological continuity – cumulatively – between the land mass of the coastal State and the seabed beyond two hundred

nautical miles.⁵⁶ Against this backdrop, the Tribunal's reasoning is cryptic, to say the least. It "finds it difficult to accept that natural prolongation [...] constitutes a separate and independent criterion a coastal State must satisfy in order to be entitled to a continental shelf beyond 200 nm."⁵⁷ While taking "note of the 'test of appurtenance' applied by the Commission on the basis of Article 76, paragraph 4, to determine the existence of entitlement beyond 200 nm," it considers that such title should be determined by reference to the outer edge of the continental margin, in accordance with Article 76(4).⁵⁸ ITLOS is not convinced of the relevance of dwelling on a geological discontinuity alleged by Bangladesh, considering that the existence of a continental margin of the two States in the area of overlap is not in doubt.⁵⁹

ITLOS was not unanimous in its reasoning. Both Judge Gao in his separate opinion⁶⁰ and Judge Lucky in his dissent⁶¹ disagree with the Tribunal's expeditious treatment of the concept of natural prolongation. The effect of ITLOS's reasoning beyond the dispute remains uncertain. Delimitation disputes are difficult to generalize about, and the Bay of Bengal case is no exception. Its continental shelf, made up of a thick sedimentary layer, is a unique case, as noted by ITLOS⁶² and admitted by the two parties, both of whom base their respective titles on this sedimentary layer.⁶³ Some authors point out that the Tribunal's understanding of natural prolongation contrasts with that of the CLCS.⁶⁴ However, despite some ambiguous wording, ITLOS distinguishes between title to the continental shelf and its outer limits.⁶⁵ The contrast could be explained, at least in part, by the way in which the dispute settlement system operates. In a dispute, the judge rarely questions the factual elements admitted by the parties – in this case, the geomorphological contiguity of the sedimentary layer. On the other hand, the specifics of the dispute determine the relevance of a challenge – in this case, the relevance of the geographic origin of the sedimentary layer in determining whether the apparent geomorphological contiguity and geological continuity could be interrupted.⁶⁶ By refusing to consider the geological evidence presented by Bangladesh, but assuming, on the basis of the admission of the sedimentary layer, that each party has title,⁶⁷ ITLOS was able to proceed with the delimitation knowing that an issue of the dispute was the delimitation of the extended continental shelves with a view to enabling the assessment of the delineation of the continental shelves of the two States by the CLCS.⁶⁸

In the *Bay of Bengal Maritime Boundary Arbitration* between Bangladesh and India, the Annex VII arbitral tribunal appears to have aligned its reasoning with that of ITLOS. In reality, however, it merely noted the

agreement of the two parties that “their entitlements beyond 200 nm are determined by application of article 76, paragraph 4,” and that neither party can claim “a superior entitlement based on geological or geomorphological factors”⁶⁹ without considering these elements, which are not in dispute. Referring then briefly to ITLOS’s reasoning, including its conclusion that it may proceed to delimitation, the arbitral tribunal noted that in the case before it, its only task was to delimit the extended continental shelf between Bangladesh and India. In other words, while ITLOS had to clarify that Bangladesh and Myanmar had title to the extended continental shelf concerned and decide whether their respective titles should be ranked, the arbitral tribunal did not have to decide these issues prior to the delimitation of the extended continental shelf of Bangladesh and India. While it is true that the tribunal does not question the reasoning of ITLOS, it would be unreasonable to infer from its laconic reference to the relevant passages that it endorses all of the nuances.

ITLOS’s legal interpretation of natural prolongation may ultimately prove to have no bearing on the prevailing interpretations in the separate scientific process before the CLCS – at least for the Canadian submission. Establishing scientifically whether the two marked elevations in the centre of the Arctic Ocean – generally referred to as the Lomonosov and Alpha-Mendeleev Ridges – belong to Canada’s continental margin were central to the first research expeditions in 2006 (Lomonosov Ridge Test of Appurtenance Survey [LORITA]) and 2008 (Alpha Ridge Test of Appurtenance Survey [ARTA]), and are an integral part of the Canadian submission to the Commission.⁷⁰

The Appurtenance Test: The Type of Admissible Scientific Evidence

Bangladesh’s argument in the delimitation dispute decided by ITLOS, far from being absurd, echoes the debate on the nature of the natural prolongation and, consequently, the type of proof required to establish appurtenance. Indeed, natural prolongation could refer as much to geomorphological continuity as to geological continuity. Drawing on the negotiation history of Article 76, Heidar explains that the definition of the continental margin is based mainly on geomorphology and appears neutral with regard to crustal type, which leads him to conclude that the geological characteristics of the prolongation are of little importance in establishing the title.⁷¹ Symonds and his colleagues, recalling the genesis of the legal concept of the continental shelf and the terms used in Article 76, consider that the concept of natural prolongation refers either to the morphology of the continental margin composed of the shelf, the slope,

and the rise, or to the geology of the seabed and its subsoil.⁷² As early as 2000, Macnab emphasized that the uplift of the seabed must be linked morphologically or geologically to the land mass, and this linkage can be established on the basis of bathymetric, seismic, tectonic, magnetic, and gravimetric data.⁷³ Although, in the early 2000s, the morphological approach was considered preferable and generally sufficient,⁷⁴ some scientists now recommend that, given advances in underwater imaging techniques, greater emphasis should be placed on the geological approach.⁷⁵ The CLCS Guidelines allow for both geomorphological and geological considerations to be taken into account.⁷⁶

The reflections of authors writing in the early 2000s consisted mainly of informed speculation on how the Commission *might* apply Article 76, as the legal regime for the extended continental shelf was not fully operationalized until the late 2000s. Russia made the first submission to the CLCS in 2001, but the majority of States eligible for an extended continental shelf have made submissions since 2009.⁷⁷

Reviewing CLCS practice, Kunoy concluded in 2017 that it assesses the existence of the natural prolongation generally on the basis of morphological evidence.⁷⁸ However, in its recommendations to the Cook Islands in 2016, the Commission considers that geological evidence is required to demonstrate the natural prolongation of the land territory beyond two hundred nautical miles⁷⁹ and considers the data insufficient to establish the morphological and/or geological prolongation of the seabed considered by the Cook Islands.⁸⁰

It is against this backdrop that Canada, Denmark, and Russia are faced with the question of whether several areas of uplift on the Arctic seabed qualify, under the appurtenance test, as a natural prolongation justifying the extension of their respective continental shelves beyond two hundred nautical miles. The stakes are high, because morphological proof is technically easier and less costly. However, morphological breaks between the Lomonosov and Alpha-Mendeleev Ridges and the North American and Siberian margins could cast doubt on whether the uplifts belong to the continental margins.⁸¹ The geological appurtenance of the elevations is central to the question, because morphologically, the ridges could be similar to oceanic ridges that cannot generate an extended continental shelf.⁸² This issue likely is one of the reasons why the CLCS recommended that Russia revise its 2001 submission.⁸³

After years of research to strengthen its data, Russia submitted a revised proposal in 2015, which presented the Lomonosov Ridge and Mendeleev Rise as a natural prolongation of its land territory.⁸⁴ Canada and Denmark, for their part, have jointly undertaken several research

programmes to establish that the Lomonosov Ridge is indeed a natural prolongation of their respective land territories (LORITA in 2006, Ward Hunt Island and LOMGRAV in 2009).⁸⁵ In 2008, the Canadian ARTA programme sought to establish that the Alpha Ridge is a natural prolongation of the Canadian landmass.⁸⁶ This ridge, a volcanic plateau that extends onto the Mendeleev Rise, is part of the High Arctic Large Igneous Province, known by its acronym HALIP. Such igneous provinces can form on either oceanic or continental crust. The tectonic history of the Alpha Ridge is poorly understood, although there are indications that it has continental components,⁸⁷ which could make it a natural prolongation of Canadian land territory within the meaning of Article 76.

Judging by its submission, Canada clearly considers that it can prove that the Lomonosov Ridge and the Alpha-Mendeleev Ridge belong to its continental margin:

The continental margin of Canada in the Arctic Ocean *is part of a morphologically continuous* continental margin that includes a number of extensive seafloor highs. These seafloor highs include the Central Arctic Plateau (Lomonosov Ridge, Alpha Ridge and Mendeleev Rise) that forms the *submerged prolongation of the landmass of Canada*. Geological and geophysical evidence further demonstrates that the Central Arctic Plateau is continuous with the landmass of Canada.⁸⁸

The data used to support the claim that the ridges are part of the Canadian landmass are, it seems, geomorphological, geological, and geophysical in nature. According to Riddell-Dixon, the latter play a crucial role.⁸⁹

From “Natural Prolongation” to “Natural Components”: The Same Challenge

The Lomonosov and Alpha-Mendeleev Ridges raise a second qualification issue. On a submarine ridge, the outer limit of the continental shelf cannot exceed a constraint line drawn 350 nautical miles from the baselines (distance constraint line).⁹⁰ However, this restriction “does not apply to submarine elevations that are natural components of the continental margin.”⁹¹ If the coastal State is able to demonstrate that the rise of the seabed in question is such an elevation, it may use either of the constraint lines in paragraph 5 – i.e., the distance constraint line or the depth constraint line which is drawn at a maximum distance of one hundred nautical miles from the 2,500-metre isobath. In the exceptional event that the 2,500-metre isobath is not reached, the depth constraint line does not impose any limit. The outer limit of the extended continental

shelf then corresponds to the maximum line drawn in accordance with paragraph 4.

On the Lomonosov and Alpha-Mendeleev Ridges, the 2,500-metre isobath is not reached.⁹² Therefore, the challenge for Canada is to establish that the two ridges are “natural components of the continental margin.” The fact that the two ridges appear to connect the North American continent and the Asian continent adds a singularity. Indeed, if Canada succeeds in proving that they constitute components of its continental margin, and assuming that Russia also succeeds in proving this in respect of its continental margin, the geophysical considerations of paragraph 4 are of no help in fixing the limit of their respective extended continental shelves. The two States, as well as Denmark in respect to the Lomonosov Ridge, would share the same continental shelf with the particularity that the geophysical continental shelf on the North American side would overlap with the territorial sea on the Asian side and vice versa. In the absence of geophysical considerations to guide the delineation of the continental shelf, this will be done with reference to legal-political considerations, including the right of each coastal State to a territorial sea and, where applicable, to a continental shelf two hundred nautical miles wide or more. It should be noted that Russia and Canada have shown restraint in their respective submissions, setting the limit of their respective extended continental shelves off the other state’s two-hundred-nautical-mile line, while Denmark has made it coincide with Russia’s two-hundred-nautical-mile line.⁹³ It is worth emphasizing that this delineation on either side will be nothing more than a prelude to negotiations aimed at delimiting the continental shelf in the area of overlap in accordance with Article 83.

The nature of submarine elevations, which must be “natural components of the continental margin,” has the notion of natural prolongation reappear in a different form. While this notion is reduced to a mere “rhetorical device”⁹⁴ in cases where delineation is carried out under paragraphs 4 and 5 of Article 76, it takes on its full meaning in the specific case of elevations within the sense of paragraph 6, which refers to “submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.” This wording raises the question of the nature and shape of the submarine elevations concerned. Starting with the form, the enumeration introduced by “such as” indicates that the list is not exhaustive – a conclusion also drawn in the CLCS Guidelines.⁹⁵ Marine uplifts of a different shape, and therefore with a different topographical designation, may also qualify as submarine elevations within the meaning of paragraph 6. However, this reasoning

does not make it possible to say with certainty whether an elevation that takes the specific shape of a ridge is also covered. The fact that the first clause of paragraph 6 provides a specific rule for submarine ridges would make it possible to argue that their omission from the list in the second clause indicates that they are not covered. However, the opposite argument can also be made. The enumeration seems to indicate that the form is of little importance. On the contrary, the reference to “natural components of the continental margin” suggests that the decisive characteristic is the composition of the elevation. The CLCS seems to have espoused this interpretation in its Guidelines on considerations for determining whether a submarine elevation, according to its tectonic history, is a natural component of the continental margin.⁹⁶ In the same vein, the CLCS recommendations to Norway in respect of Bouvet Island endorsed the delineation that was based on the understanding that the depth constraint line could be applied to the Shaka Ridge – which is undoubtedly a ridge – as it is a natural component of the continental margin.⁹⁷

Finally, it should be added that the term “ridge,” appropriate for the Lomonosov rise, appears to be a shorthand for the Alpha-Mendeleev rise. The Canadian submission distinguishes between the “Alpha ridge” and the “Mendeleev Rise.”⁹⁸ However, this terminological distinction has no legal consequences. The submission presents the Central Arctic Plateau, formed by the Lomonosov and Alpha-Mendeleev rises, as a “natural component of its continental margin”⁹⁹ and indicates that the depth constraint line has been used to draw the outer limit of the continental shelf.¹⁰⁰ It can thus be concluded that Canada considers the second clause of paragraph 6 applicable to both elevations. The geological and geophysical continuity served to justify their status as natural components of the Canadian continental margin, allowing Canada to use the depth constraint line which does not impose a limit.

Building a Scientific and Legal Consensus

In preparation for its submission to the CLCS, Canada actively collaborated with the other Arctic States, both scientifically and diplomatically, giving substance to a central principle of *UNCLOS*. Cooperation also characterizes the relationship between the coastal State and the CLCS. It is in this context that a genuine co-construction of the understanding of legal rules, scientific categories, and geophysical phenomena has taken place.

Circumpolar Cooperation

Circumpolar cooperation around continental shelves is keeping with international cooperation in marine scientific research that *UNCLOS* enshrines as a key principle.¹⁰¹ In the 2008 Ilulissat Declaration, the Arctic coastal States stressed the importance of cooperation in meeting the challenges of the region.¹⁰² According to the Canadian government, such cooperation has led to “mutually beneficial outcomes.”¹⁰³

Sustained bilateral and multilateral cooperation between Arctic States has proven necessary for practical reasons. Data collection is particularly difficult in the Arctic Ocean, as expeditions are carried out in remote areas that are ice-covered for much of the year.¹⁰⁴ The Arctic States have therefore taken advantage of their complementarity by pooling their knowledge, technologies, and equipment, making it possible to carry out large-scale scientific programmes while reducing their cost.

In 1997, this cooperative spirit led to the launch of the International Bathymetric Chart of the Arctic Ocean, a common bathymetric database better known by the acronym IBCAO, which is supplied by volunteer investigators from ten States.¹⁰⁵ Its data has contributed to the preparation of dossiers submitted to the CLCS, including Canada’s.¹⁰⁶ Even more specifically, the launch of Canada’s Arctic Ocean seabed mapping programme in 2003 led to several joint Arctic expeditions with other Arctic States.¹⁰⁷ To determine the nature of the Lomonosov and Alpha Ridges, Canada and Denmark conducted the LORITA programme in 2006, followed by two programmes in 2009 (Ward Hunt Island and LOMGRAV).¹⁰⁸ Canada also cooperated with Denmark and Sweden to gather bathymetric, seismic, gravimetric, and magnetic data from the Lomonosov Ridge as part of the LOMROG (Lomonosov Ridge off Greenland) I and II programmes in 2007 and 2009, and again in 2016.¹⁰⁹ From 2008 to 2015, Canada also led several expeditions with the United States to collect bathymetric and seismic data in the Canada Basin.¹¹⁰

The United States, although not a party to *UNCLOS*, intends to apply the rules of Article 76 to the delineation of its extended continental shelf, which explains its research efforts to this effect. For the moment, no delineation has been published. However, in September 2020, the United States issued a decree announcing, in a significant reversal of a policy dating back to 1983, their

right to regulate, authorize, and conduct marine scientific research, with a specific requirement to authorize, in advance, all instances of foreign marine scientific research, in the United States EEZ [exclusive economic zone] and on its continental shelf to the extent permitted under international law.¹¹¹

The guidelines for applicants, designed to operationalize the prior authorization requirement, provide clues as to the extended continental shelf over which the U.S. intends to exercise jurisdiction. Presumably on the basis of knowledge acquired in the course of research on the extended continental shelf, but in the absence of a delineation under Article 76 and of any official proclamation of the outer limits of the extended continental shelf, they in fact encourage applicants to submit their “questions” to the Office of Ocean and Polar Affairs regarding research “[i]n the Arctic Ocean, on the U.S. side of the U.S.-Russia maritime boundary in the following areas: the Arctic Ocean, on the U.S. side of the U.S.-Russia maritime boundary. Russia maritime boundary in the following areas: the Chukchi Shelf, Chukchi Borderland, Canada Basin, and Nautilus Basin.”¹¹²

Coming back to the joint research programmes, they generally conclude with the dissemination of the knowledge acquired.¹¹³ Researchers involved in the Canadian programme, together with their circumpolar partners, have been particularly active in producing scientific publications: twenty-six peer-reviewed publications appeared between 2010 and 2015.¹¹⁴ Scientific data is also presented and discussed at international scientific conferences. Through these scientific exchanges, the Arctic States contribute to an emerging international consensus on acceptable methodologies for collecting, analyzing, and interpreting data.¹¹⁵ By way of example, scientists from the Canadian and Danish geological surveys noted, in a joint 2011 publication, the coexistence of several competing interpretations of the Alpha-Mendeleev Ridge but they suggested an interpretation of the seismic data collected during the ARTA expedition that does not contradict the thesis that this volcanic complex belongs to the continent.¹¹⁶ This is significant given uncertainty surrounding the interpretation of the data, with Denmark stating in its 2014 submission to the CLCS that the data in its possession did not allow it to establish that the Alpha-Mendeleev Ridge was a natural component of the Greenland continental margin,¹¹⁷ while Russia announced the following year that it considered it to be a natural component of its own continental margin.¹¹⁸ Canada’s assertion that the Alpha-Mendeleev Ridge is a natural component of its continental margin appears to be based on additional data collected during subsequent expeditions. These data could not have been shared with the other coastal States prior to their respective submissions to the CLCS. In particular, surveys carried out by Canada between 2014 and 2016 apparently provided more detailed data for the Alpha Ridge and fundamentally changed the understanding of the formation of the Arctic Ocean.¹¹⁹ Danish scientists were invited to take part in these two Canadian expeditions, demonstrating a mutual desire

on the part of the two States to continue their scientific collaboration despite differences over the nature of the Alpha Ridge in their respective submissions.¹²⁰

While years of sustained research have led to considerable advancements in knowledge about the Arctic seabed, the Arctic States have more specifically made efforts to ensure that their submissions to the CLCS do not undermine one another. Differences in interpretation between the Russian, Danish, and Canadian submissions, which the Commission will examine in that order, could be particularly damaging to the Canadian argument.¹²¹ The five Arctic coastal States – Canada, Denmark, the United States, Russia, and Norway – have met on several occasions to coordinate their efforts.¹²² Annual workshops have been held to discuss technical and legal issues relating to the delineation of the outer limits of their respective extended continental shelves. At the workshop held in December 2017 in Ottawa, discussions focused, among other things, on geological samples, the characterization of certain seabed areas, and the work of the Commission, while a diplomatic meeting addressed legal issues.

The Arctic States have set up major administrative structures made up of scientists and lawyers specializing in continental shelves who actively cooperate in the acquisition and transnational dissemination of knowledge with the aim of reaching a scientific consensus on the continental shelf. In this sense, they act as producers, consumers, and verifiers of science.¹²³

This consensual approach is also reflected in the bilateral agreements between Canada and its Danish, Russian, and American partners regarding the overlap of their respective continental shelves: no State will oppose the Commission's examination of the other State's submission.¹²⁴ In this context, Canada, Denmark, and Russia do not perceive the fact that these same seabed elevations – the Lomonosov and Alpha-Mendeleev Ridges – appertain to their respective land territories, as established through these collaborative efforts, as a competitive situation. Contrary to a naïve perception,¹²⁵ the delineation of the Arctic continental shelves is not part of a competitive or even antagonistic dynamic. Quite the opposite: the overlap is the inevitable result of a geophysical reality, the consequences of which will have to be resolved by delimitation, i.e., the negotiation of a maritime boundary in accordance with Articles 76(10) and 83 of *UNCLOS*. This is emphasized in the Ilulissat Declaration and echoed in the Canadian submission.¹²⁶

Cooperation with the CLCS

The co-construction of a consensus within the transnational epistemic communities working on the extended continental shelf thus contributes directly to strengthening the argument that Canada presented to the CLCS. For Canada, it is crucial that epistemic communities share the view that the Lomonosov and Alpha-Mendeleev Ridges are the natural prolongation of Canadian territory and natural components of the continental margin. As Riddell-Dixon points out, “[t]he prior vetting of conclusions through the peer-review process should enhance the legitimacy of each country’s findings in the eyes of the commissioners who ultimately review the submissions.”¹²⁷ Indeed, the commissioners do not produce scientific knowledge but will examine the Canadian submission in the light of scientific knowledge recognized as valid.

The procedure before the CLCS itself is also marked by a logic of cooperation. It is viewed as a “narrowing down ‘ping-pong’ procedure”¹²⁸ in which the back-and-forth between the Commission and the submitting State, enshrined in the rules of Annex II of *UNCLOS*, enables a consensual interpretation of a given continental shelf to emerge. The coastal State is called upon to participate in the work of the sub-commission responsible for evaluating its submission.¹²⁹ Generally, the State will have the opportunity to present its data and its interpretation, take part in some of the working sessions for consultation, and provide additional clarifications.¹³⁰ The State may also make a presentation to the CLCS before the Commission examines the recommendations proposed by the sub-commission.¹³¹ The CLCS also has a mandate to provide technical and scientific advice: any coastal State may request to be provided scientific and technical advice concerning the data that will be presented as part of the procedure for determining the outer limits of the extended continental shelf.¹³² It is also possible for individual members of the Commission to support a particular coastal State by providing scientific and technical advice on the proposed delineation,¹³³ which Canada has sought from three successive members of the Commission.¹³⁴ As this illustrates, the nature of the relationship between the coastal State and the CLCS is clearly cooperative.¹³⁵

The co-construction of the understanding of a given continental shelf therefore takes place at the time the submission is prepared, when the data are collected and interpreted, but it continues during the examination procedure before the CLCS. At these various stages, the usual twofold interpretation¹³⁶ of the rule of law and the facts governed by the rule gives way – given the recourse of the legal regime to scientific categories – to a threefold interpretation: of the legal criteria forming the legal regime, of

the submarine phenomena governed by this regime, and of the scientific categories to which the rules refer and which constitute the prism through which the submarine phenomena are viewed. The coastal State's ability to wield influence is significant because of the three poles of interpretation, and it is enshrined in and intended by the legal regime. At the same time, it places the onus on the coastal State to participate actively in the co-creation of a legal and scientific consensus within transnational epistemic communities to minimize divergence of interpretation from related submissions by other States. Canada certainly needed to deal with this burden in relation to its extended continental shelf in the Arctic, a space with multiple overlaps, but it has also sought to take advantage of it.

The pitfalls associated with differences of interpretation before the CLCS are twofold. Favourable recommendations are inseparable from the state of scientific knowledge, but also from the interpretations deemed relevant by the epistemic communities dealing with the Arctic continental shelf. Insufficient scientific knowledge may lead the sub-commission or the CLCS to reject the arguments put forward by the coastal States, a fate that befell the first Russian submission: the Commission considered that "the state of scientific knowledge" did not allow the conclusion that the Lomonosov and Alpha-Mendeleev Ridges were the natural prolongation of Russian territory and that they constituted natural components of the continental margin within the meaning of paragraph 6 of Article 76.¹³⁷ A negative recommendation may also result from irreconcilable interpretations, as was the case with the United Kingdom's submission concerning Ascension Island. In such a case, the coastal State that disagrees with the CLCS's recommendation can transmit a revised submission or a new submission.¹³⁸ More often than not, this means going back to the drawing board, or even carrying out new expeditions to collect missing data: thirteen years passed before Russia was able to present its revised submission to the Commission.¹³⁹

While Canada has invested considerably, along with its circumpolar partners and other epistemic communities, to maximize its chances of obtaining favourable recommendations from the CLCS, the outcome is difficult to predict. The large number of State submissions and their complexity mean that the time it takes from submission to recommendation is considerable. From just two or three years at the time of the first submissions, it has now increased to more than a decade, and it could be even longer by the time Canada's submission, which is currently second last on the list, is assessed.¹⁴⁰ In the meantime, scientific knowledge will advance and may modify the legal-scientific understanding of the seabed that produced the consensus on which the

Canadian submission is based. Canada must therefore continue to keep abreast of developments and, if necessary, provide additional data and interpretations during the proceedings, as the procedure allows.¹⁴¹

Conclusion

Article 76 of *UNCLOS* is characterized by the threefold legal, scientific, and factual interpretation it entails for States. Examining the concept of “natural prolongation” through the lens of Canada’s submission concerning its extended continental shelf in the Arctic has led us to focus as much on the various communities involved in these interpretative activities as on the consensus they reach in their interactions. This allows us to make to several observations.

The question of whether the natural prolongation constitutes its own legal criterion, to be met by the coastal State, has given rise to an occasionally laborious process for the legal-political community, with respect both to the legal conceptualization of the continental shelf by States and to its judicial interpretation. For its part, the scientific community, under the decisive influence of the CLCS, quickly concluded that there was a (legal) need for a (scientific) test of appurtenance and succeeded in imposing it on States. This same scientific community is also working to clarify the type of evidence required to establish the “natural prolongation” and the character of “natural components” of certain elevations of the seabed.

The fact that an important part of the operationalization of the legal regime of Article 76 has been entrusted to this scientific community explains the preponderant role that this community plays in its crystallization. Through its interpretation of scientific categories and the assessment of geophysical phenomena in particular, it has given the legal regime its concrete form. While the meaning of the legal rules now seems to be roughly defined, scientific knowledge will continue to advance in parallel to research into extended continental shelves. The process of reaching consensus on legal, scientific, and factual interpretations is therefore far from over. In this context, it cannot be ruled out that ITLOS, the ICJ, and arbitration tribunals will continue to play a secondary role, despite their usual pre-eminent authority for legal interpretation. After all, they are not the forum in which the legitimacy of a proposed extended continental shelf is acquired.

Such legitimacy does not derive from judicial consecration, but from a process of co-constructing the meaning of legal rules, scientific categories, and geophysical phenomena in circles where, in various configurations, the general scientific community, scientists working on behalf of States, those of the CLCS, and diplomatic representatives of States rub shoulders.

Canada has played an active role in these circles, arguably for two reasons. First, from a practical point of view, such cooperation enabled it to meet the major challenge of conducting marine scientific research in the Arctic. Second, from a strategic point of view, these interactions presented opportunities to influence emerging understandings in a way that served Canada's interests.

It is also in this cooperative approach that the desire expressed by the circumpolar States in the Ilulissat Declaration materializes. It rejects the individualistic tactic of seeking gains by pursuing competitive advantages as incompatible with the letter of law. Instead, it endorses the spirit of the law, which aims to enable each State to maximize the extent of its continental shelf, not in spite of, but because of, co-constructed understandings of legal rules, scientific categories, and geophysical phenomena.

Notes

The authors would like to thank Kenneth Wong of Global Affairs Canada for valuable discussions and explanations that contributed to the completion of this study. They would also like to thank the anonymous reviewers for their insightful comments. This article is based in part on research funded by the Social Sciences and Humanities Research Council of Canada (SSHRC).

¹ Government of Canada, *Partial Submission of Canada to the Commission on the Limits of the Continental Shelf Regarding its Continental Shelf in the Arctic Ocean*, Executive Summary, 2019, https://www.un.org/depts/los/clcs_new/submissions_files/can1_84_2019/CDA_ARC_ES_EN_secured.pdf.

² *United Nations Convention on the Law of the Sea*, 10 December 1982, 1833 United Nations Treaty System [UNTS] 397 (entered into force: 16 November 1994) [UNCLOS].

³ UNCLOS, *supra* note 2, art 77.

⁴ *Ibid.*, art 77(3).

⁵ *Ibid.*, art 76(1).

⁶ *Ibid.*, art 76(4)-(6).

⁷ *Ibid.*, art 76(8).

⁸ Betsy Baker, "Law, Science, and the Continental Shelf: The Russian Federation and the Promise of Arctic Cooperation" (2010) 25:2 *Am U Intl L Rev* 251, p 263.

⁹ UNCLOS, *supra* note 2, art 76(1) [*italics added*].

¹⁰ See also Philip A. Symonds et al., "Characteristics of Continental Margins" in Peter J. Cook and Chris M. Carleton, eds., *Continental Shelf Limits: The Scientific and Legal Interface*, Oxford, Oxford University Press, 2000, 25, p 26.

¹¹ UNCLOS, *supra* note 2, art 76(7); see also Ted L. McDorman, "The Role of the Commission on the Limits of the Continental Shelf: A Technical Body in a Political World" (2002) 17:3 *Intl J Mar & Coast L* 301, p 309.

¹² UNCLOS, *supra* note 2, Annex II, art 2(1).

¹³ *Ibid.*, Annex II, art 3(1)(b).

¹⁴ *Ibid.*, Annex II, art 3(1)(a).

¹⁵ *Ibid.*, art 76(8).

¹⁶ Bjørn Kunoy, "The Terms of Reference of the Commission on the Limits of the Continental Shelf: A Creeping Legal Mandate" (2012) 25:1 *Leiden J Intl L* 109 [Kunoy, "Terms of Reference"]; Bjørn Kunoy, "Assertions of Entitlement to the Outer Continental Shelf in the Central Arctic Ocean" (2017) 66:2 *Intl Comp Law Q* 367 [Kunoy, "Assertions"]; Andrew Serdy, "The Commission on the Limits of the Continental Shelf and Its Disturbing Propensity to Legislate" (2011) 26 *Intl J Mar & Coast L* 355; Sari Graben and Peter Harrison, "Arctic Networks and Legal Interpretations of the UN Commission on the Limits of the Continental Shelf" (2015) 28:4 *Leiden J Intl L* 771, p 780.

¹⁷ McDorman, *supra* note 11, pp 319 and after; Øystein Jensen, *The Commission on the Limits of the Continental Shelf: Law and Legitimacy*, Leiden, Brill, 2014, pp 95-98.

¹⁸ Kunoy, "Terms of Reference," *supra* note 16, p 114.

¹⁹ Commission on the Limits of the Continental Shelf (CLCS), "Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf," CLCS/11, 5th session, 1999 [Scientific Guidelines].

²⁰ *Ibid.*, para 1.3.

²¹ Graben and Harrison, *supra* note 16, p 774.

²² *Ibid.*, pp 775, 785.

²³ Emanuel Adler, "Seizing the Middle Ground: Constructivism in World Politics" (1997) 3:3 *Eur J Intl Relations* 319; Richard Price and Christian Reus-Smit, "Dangerous Liaisons? Critical International Theory and Constructivism" (1998) 4:3 *Eur J Intl Relations* 259; John Gerard Ruggie, "What Makes the World Hang Together? Neo-utilitarianism and the Social Constructivist Challenge" (1998) 52:4 *Intl Org* 855; Alexander Wendt, *Social Theory of International Politics*, Cambridge, Cambridge University Press, 1999. For a constructivist study of the law of extended continental shelves, see Graben and Harrison, *supra* note 16.

²⁴ Martha Finnemore and Kathryn Sikkink, "Taking Stock: The Constructivist Research Program in International Relations and Comparative Politics" (2001) 4:1 *Ann Rev Political Science* 391, pp 392-93.

²⁵ Martha Finnemore, *National Interests in International Society*, Ithaca, Cornell University Press, 1996, p 2.

²⁶ Jutta Brunnée and Stephen J. Toope, "Constructivism and International Law" in Jeffrey Dunoff and Mark Pollack, eds., *Interdisciplinary Perspectives on International Law and International Relations*, Cambridge, Cambridge University Press, 2012, 119-37.

²⁷ *Ibid.*, p 125.

²⁸ Arthur Kaufmann, "Par-delà le droit naturel et le positivisme juridique vers l'herméneutique juridique," trans. Kristin Bartenstein (2019) 82:1 *RIEJ* 61, p 67.

²⁹ *Ibid.*, 68.

³⁰ *Ibid.*, 70.

³¹ *Ibid.*, 71 [italics in original].

³² United States President, 1945 *US Presidential Proclamation no. 2667: Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf*, 10 FR 12303, (1945) 13 DSB 485.

³³ Hyun Jung Kim, "Natural Prolongation: A Living Myth in the Regime of the Continental Shelf?" (2014) 45:4 *Ocean Dev & Intl L* 374, p 375.

³⁴ Convention on the Continental Shelf, 29 April 1958, 499 UNTS 312, art 1 (entered into force: 10 June 1964) [emphasis added].

-
- ³⁵ North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands), [1969] ICJ Rep 3 para 39 [emphasis added].
- ³⁶ Alex Oude Elferink, "Article 76 of the LOSC on the Definition of the Continental Shelf: Questions Concerning Its Interpretation from a Legal Perspective" (2006) 21:3 *Intl J Mar & Coast L* 269, p 272.
- ³⁷ Continental Shelf (Tunisia/Libyan Arab Jamahiriya), [1982] ICJ Rep 18, para 47.
- ³⁸ Continental Shelf (Libyan Arab Jamahiriya/Malta), Judgment, [1985] ICJ Rep 13, para 34.
- ³⁹ *Ibid.*; see also *UNCLOS*, supra note 2, art 56(1)(a).
- ⁴⁰ D.H. Anderson, "Some Recent Developments in the Law Relating to the Continental Shelf" (1988) 6:2 *J Energy Nat Resources & Envtl L* 95, pp 96-97; Stephen Lloyd, "Natural Prolongation: Have the Rumours of Its Demise Been Greatly Exaggerated?" (1991) 3:3 *African J Intl & Comparative L* 558, p 562.
- ⁴¹ Scientific Guidelines, supra note 19, para 2.1.1.
- ⁴² *UNCLOS*, supra note 2, art 76(9).
- ⁴³ Scientific Guidelines, supra note 19, para 2.2.2.
- ⁴⁴ *Ibid.*, para 2.2.3.
- ⁴⁵ *Ibid.*, para 2.2.6.
- ⁴⁶ *Ibid.*, para 2.2.9.
- ⁴⁷ Yao Huang and Xuexia Liao, "Natural Prolongation and Delimitation of the Continental Shelf Beyond 200 nm: Implications of the Bangladesh/Myanmar Case" (2014) 4:2 *Asian J Intl L* 281, p 291.
- ⁴⁸ Elferink, supra note 36, pp 277-78.
- ⁴⁹ CLCS, *Summary of the Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by the United Kingdom of Great Britain and Northern Ireland in Respect of Ascension Island on 9 May 2008*, 15 April 2010, https://www.un.org/Depts/los/clcs_new/submissions_files/gbr08/gbr_asc_isl_rec_summ.pdf.
- ⁵⁰ *Ibid.*, para 46.
- ⁵¹ *Ibid.*, para 47.
- ⁵² *Ibid.*, para 49.
- ⁵³ *Ibid.*, para 50.
- ⁵⁴ *Ibid.*, para 51.
- ⁵⁵ *Ibid.*, paras 50-51.
- ⁵⁶ Delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal, Judgment, [2012] ITLOS Rep 4, para 426 [Bay of Bengal], https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_16/published/C16-J-14_mar_12.pdf.
- ⁵⁷ *Ibid.*, para 435.
- ⁵⁸ *Ibid.*, paras 436-38.
- ⁵⁹ *Ibid.*, paras 438, 443-49.
- ⁶⁰ *Ibid.*, p 226, separate opinion of Judge Gao.
- ⁶¹ *Ibid.*, p 272, dissenting opinion of Judge Lucky.
- ⁶² *Ibid.*, para 444.
- ⁶³ *Ibid.*, paras 445-46.
- ⁶⁴ Huang and Liao, supra note 47, pp 292-93; Kunoy, "Assertions," supra note 16, p 384.
- ⁶⁵ Bay of Bengal, supra note 56, para 409.
- ⁶⁶ *Ibid.*, paras 424-27.
- ⁶⁷ *Ibid.*, para 446.

⁶⁸ Ibid., paras 390-94.

⁶⁹ Bay of Bengal Maritime Boundary Arbitration (Bangladesh/India), PCA Case no. 2010-16 (2014), para 457, <https://pcacases.com/web/sendAttach/383>.

⁷⁰ See Elizabeth Riddell-Dixon, *Breaking the Ice: Canada, Sovereignty, and the Arctic Extended Continental Shelf*, Toronto, Dundurn, 2017, x, pp 155-56. The Lomonosov Ridge Test of Appurtenance survey (LORITA) in 2006 was the first, and the Alpha Ridge Test of Appurtenance survey (ARTA) in 2008 was the fifth, of eighteen missions carried out between 2006 and 2016 on Canada's extended continental shelf in the Arctic.

⁷¹ Tomas H. Heidar, "Legal Aspects of Continental Shelf Limits" in Myron H. Nordquist, John Norton Moore, and Tomas H. Heidar, eds., *Legal and Scientific Aspects of Continental Shelf Limits*, Leiden, M. Nijhoff, 2004, 19, pp 24-25.

⁷² Symonds et al., supra note 10, p 27.

⁷³ See also Ron Macnab, "Initial Assessment" in Cook and Carleton, supra note 10, 253, p 255.

⁷⁴ Ibid.

⁷⁵ Olav Eldholm and Filippos Tsikalas, "Scientific Aspects of the Continental Shelf" in Nordquist, Norton Moore, and Heidar, supra note 71, 41, p 51.

⁷⁶ Scientific Guidelines, supra note 19, principally para 2.2.6, but see also para 8.1.

⁷⁷ Meeting of State Parties to UNCLOS: Decision regarding the date of commencement of the ten-year period for making submissions to the Commission on the Limits of the Continental Shelf set out in article 4 of annex II to the United Nations Convention on the Law of the Sea, Decision SPLOS/72, 11th meeting, 29 May 2001.

⁷⁸ Kunoy, "Assertions," supra note 16, pp 382-83.

⁷⁹ CLCS, *Summary of the Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by the Cook Islands in Respect of the Manihiki Plateau on 16 April 2009*, 2016, https://www.un.org/Depts/los/clcs_new/submissions_files/cok23_09/2016_08_19_com_sumrec_cok.pdf, para 58.

⁸⁰ Ibid., para 97.

⁸¹ Ron Macnab, "Submarine Elevations and Ridges: Wild Cards in the Poker Game of UNCLOS Article 76" (2008) 39:2 *Ocean Dev & Intl L* 223, p 226.

⁸² UNCLOS, supra note 2, art 76(3).

⁸³ Government of the Russian Federation, *Partial Revised Submission of the Russian Federation to the Commission on the Limits of the Continental Shelf in Respect of the Continental Shelf of the Russian Federation in the Arctic Ocean, Executive Summary*, 2015, https://www.un.org/Depts/los/clcs_new/submissions_files/rus01_rev15/2015_08_03_Exec_Summary_English.pdf, p 12.

⁸⁴ Ibid.

⁸⁵ About the LORITA programme, see H. Ruth Jackson and Trine Dahl-Jensen, *Field Report for LORITA (Lomonosov Ridge Test of Appurtenance)*, Geological Survey of Canada, Open File 5391, 2007; about the Ward Hunt Island programme, see Geological Survey of Denmark and Greenland, "Continental Shelf Project: Field Work, Spring Spring 2009," <https://a76.dk/en/field-work-spring-2009/> [Geological Survey of Denmark and Greenland]; about the LOMGRAV programme, see Jürgen Matzka et al., "A New Aeromagnetic Survey of the North Pole and the Arctic Ocean North of Greenland and Ellesmere Island" (2010) 62:10 *Earth, Planets & Space* 12.

⁸⁶ H.R. Jackson and D.P. Potter, eds., *Expedition Report for the Alpha Ridge Test of Appurtenance (ARTA) 2008*, Geological Survey of Canada, Open File 6842, 2016.

-
- ⁸⁷ For a recent study by the Geological Survey of Canada, see H. Ruth Jackson and D. Chian, "The Alpha-Mendelev Ridge, a Large Igneous Province with Continental Affinities" (2019) 141:4 *GFF* 316.
- ⁸⁸ Government of Canada, *supra* note 1, p 7 [italics added].
- ⁸⁹ See also Riddell-Dixon, *supra* note 70, pp 206-09.
- ⁹⁰ UNCLOS, *supra* note 2, art 76(6), cl 1.
- ⁹¹ *Ibid.*, art 76(6), cl 2.
- ⁹² Martin Jakobsson et al., "The International Bathymetric Chart of the Arctic Ocean, version 3.0" (2012) 39:12 *Geophysical Research Letters*, www.ibcao.org.
- ⁹³ Government of Canada, *supra* note 1, p 15; see also Government of the Russian Federation, *supra* note 83, p 7; Kingdom of Denmark, *The Northern Continental Shelf of Greenland: Partial Submission of the Government of the Kingdom of Denmark Together with the Government of Greenland to the Commission on the Limits of the Continental Shelf: Executive Summary*, 2014, p 8, www.un.org/Depts/los/clcs_new/submissions_files/dnk76_14/dnk2014_es.pdf.
- ⁹⁴ Kim, *supra* note 33, p 381.
- ⁹⁵ Scientific Guidelines, *supra* note 19, para 7.3.1.
- ⁹⁶ *Ibid.*
- ⁹⁷ CLCS, *Summary of Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by Norway in Respect of Bouvetøya and Dronning Maud Land on 4 May 2009*, 8 February 2019, paras 61-68 (relating to the building of the consensus that the Shaka Ridge is a submarine elevation constituting a natural component of the continental margin of Bouvet Island) and paras 70-71 (concerning the applicability of the depth constraint and its accuracy).
- ⁹⁸ Government of Canada, *supra* note 1, pp 7, 8.
- ⁹⁹ *Ibid.*
- ¹⁰⁰ *Ibid.*, p 15.
- ¹⁰¹ UNCLOS, *supra* note 2, arts 242-44.
- ¹⁰² Ilulissat Declaration, 28 May 2008, <https://arcticportal.org/images/stories/pdf/Ilulissat-declaration.pdf>.
- ¹⁰³ Global Affairs Canada, *Evaluation of Canada's Extended Continental Shelf Program: Final Report*, 2019, p 11, <https://www.international.gc.ca/gac-amc/assets/pdfs/publications/evaluation/2019/2019-evaluation-ecs-pce-eng.pdf>.
- ¹⁰⁴ Government of Canada, *supra* note 1, 5-6; Riddell-Dixon, *supra* note 70, ch 3-4.
- ¹⁰⁵ Jakobsson et al., *supra* note 92.
- ¹⁰⁶ Government of Canada, *supra* note 1, pp 2, 14.
- ¹⁰⁷ For information, see U.S. Government Survey, "US-Canada Arctic Expedition, Surveying the Extended Continental Shelf," 22 December 2017, www.youtube.com/watch?v=68XznuaHcLw; Monique Andree Allain, "Canada's Claim to the Arctic: A Study in Overlapping Claims to the Outer Continental Shelf" (2011) 42 *J Mar L & Com* 1, p 21.
- ¹⁰⁸ For the LORITA programme, see Jackson and Dahl-Jensen, *supra* note 85; for the Ward Hunt Island expedition, see Geological Survey of Denmark and Greenland, *supra* note 85; for the LOMGRAV programme, see Matzka et al., *supra* note 85.
- ¹⁰⁹ Government of Canada, "Chronology of Survey Missions," 1 March 2019, www.science.gc.ca/eic/site/063.nsf/fra/h_5C9B2416.html; see also Martin Jakobsson, Christian Marcussen and LOMROG Scientific Party, *Lomonosov Ridge off Greenland 2007 (LOMROG): Cruise Report*, Special Publication Geological Survey of Denmark and Greenland, Copenhagen, Denmark, 2008; Christian Marcussen and LOMROG II

Scientific Party, *Lomonosov Ridge off Greenland (LOMROG II): Cruise Report*, Special Publication Geological Survey of Denmark and Greenland, Copenhagen, 2011; J. Shimeld and K. Boggild, *Seismic Operations Report for the 2016 Canada-Sweden Polar Expedition in the Arctic Ocean*, Geological Survey of Canada, Open file 8239, 20171.

¹¹⁰ Government of Canada, supra note 109; see also D.C. Mosher, J.W. Shimeld and D.R. Hutchinson, *2009 Canada Basin Seismic Reflection and Refraction Survey, Western Arctic Ocean: CCGS Louis S. St-Laurent Expedition Report*, Geological Survey of Canada, Open file 6343, 2009; D.C. Mosher, J.W. Shimeld and C.B. Chapman, *2010 Canada Basin Seismic Reflection and Refraction Survey, Western Arctic Ocean: CCGS Louis S. St-Laurent Expedition Report August 4–September 15, 2010 Kugluktuk, NWT to Kugluktuk, NWT*, Geological Survey of Canada, Open file 6720, 2011; D.C. Mosher, *2011 Canadian High Arctic Seismic Expedition: CCGS Louis S. St-Laurent Expedition Report*, Geological Survey of Canada, Open file 7053, 2012.

¹¹¹ President of the United States, *Proclamation on Revision to United States Marine Scientific Research Policy*, 15 September 2020, <https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-revision-united-states-marine-scientific-research-policy/>.

¹¹² Office of Ocean and Polar Affairs, “About the Research Application Tracking System,” www.state.gov/research-application-tracking-system/.

¹¹³ See in particular Jackson and Dahl-Jensen, supra note 85; Jakobsson, Marcussen and LOMROG Scientific Party, supra note 109; Mosher, Shimeld and Hutchinson, supra note 110; Matzka et al., supra note 85; Mosher, Shimeld and Chapman, supra note 110; Marcussen and LOMROG II Scientific Party, supra note 109; Mosher, supra note 110; Jackson and Potter, supra note 86; and Shimeld and Boggild, supra note 109.

¹¹⁴ Global Affairs Canada, supra note 103, p 10.

¹¹⁵ *Ibid.*, p 11.

¹¹⁶ Thomas Funck, H. Ruth Jackson and John Shimeld, “The Crustal Structure of the Alpha Ridge at the Transition to the Canadian Polar Margin: Results from a Seismic Refraction Experiment” (2011) 116:B12 *J Geophysical Research: Solid Earth*, <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2011JB008411>.

¹¹⁷ Kingdom of Denmark, supra note 93, p 14.

¹¹⁸ Government of the Russian Federation, supra note 83, p 6.

¹¹⁹ Global Affairs Canada, supra note 103, p 9-10.

¹²⁰ *Ibid.*, p 12.

¹²¹ Riddell-Dixon, supra note 70, p 226.

¹²² Global Affairs Canada, supra note 103, p 11.

¹²³ Graben and Harrison, supra note 16, p 775.

¹²⁴ Government of Canada, supra note 1, pp 10-11.

¹²⁵ The terms “race” and “rush” reflect such a view, which is neither limited to the media nor a discourse of the distant past. See in particular Jon D. Carlson et al., “Scramble for the Arctic: Layered Sovereignty, UNCLOS, and Competing Maritime Territorial Claims” (2013) 33:2 *SAIS R Intl Affairs* 21.

¹²⁶ See the Ilulissat Declaration, supra note 102; Government of Canada, supra note 1, pp 10-11.

¹²⁷ Riddell-Dixon, supra note 70, p 238.

¹²⁸ See Gardiner’s comments reported by McDorman, supra note 11, p 306.

¹²⁹ UNCLOS, supra note 2, Annex II, art 5.

¹³⁰ CLCS, “Rules of Procedure of the Commission on the Limits of the Continental Shelf,” CLCS/40/Rev.1, 21st session, 2008, Annex III, Part VI (“Participation of coastal State representatives in the proceedings”), art 15.1 [Rules].

¹³¹ *Ibid.*, art 15.1.

¹³² *UNCLOS*, supra note 2, Annex II, art 3(1)(b).

¹³³ Indirectly, *ibid.*, art 5.

¹³⁴ Government of Canada, supra note 1, p 6.

¹³⁵ See also Alexei Zinchenko, “Emerging Issues in the Work of the Commission on the Limits of the Continental Shelf” in Nordquist, Moore and Heidar, supra note, pp 223-26; Suzette V. Suarez, “The Commission on the Limits of the Continental Shelf and Its Function to Provide Scientific and Technical Advice Comment” (2013) 12 *Chinese J Intl L* 339, p 349.

¹³⁶ Kaufmann, supra note 28 and accompanying text.

¹³⁷ Government of the Russian Federation, supra note 83, p 12.

¹³⁸ *UNCLOS*, supra note 2, Annex II, art 8.

¹³⁹ Government of the Russian Federation, supra note 83, p 13.

¹⁴⁰ See the list of submissions and CLCS’s proceedings at www.un.org/Depts/los/clcs_new/commission_submissions.htm.

¹⁴¹ Rules, supra note 130, Annex III, art 6.3; Annex IV, art 10; Annex VI, art 15.



Further Reading

Selected readings on Canadian Arctic sovereignty and security that have been published by Canadians on historical and legal topics since the publication of volume 1 in 2011.

History

- Bocking, Stephen, and Daniel Heidt, eds. *Cold Science: Environmental Knowledge in the North American Arctic during the Cold War*. New York: Routledge, 2019.
- Cavell, Janice, ed. *Documents on Canadian External Relations: The Arctic, 1874-1949*. Ottawa: Global Affairs Canada, 2016.
- Clancy, Peter, and P. Whitney Lackenbauer, eds. *Shaping Inuit Policy: The Minutes of the Eskimo Affairs Committee, 1952-62*. Documents on Canadian Arctic Sovereignty and Security (DCASS) No. 14. Calgary and Waterloo: Centre for Military, Security and Strategic Studies (CMSS)/Centre on Foreign Policy and Federalism (CFPF)/Arctic Institute of North America (AINA), 2019.
- Coates, Kenneth S., and William R. Morrison. "The New North in Canadian History and Historiography." *History Compass* 6, no. 2 (2008): 639-58.
- Dean, Ryan, and P. Whitney Lackenbauer. *Operation Morning Light*. Arctic Operational Histories No. 3. Antigonish: Mulroney Institute of Government, 2018.
- Dean, Ryan, and P. Whitney Lackenbauer. "'A Particularly Spectacular Piece of Demolition': The Canadian-Led Raid on Spitzbergen, 1941." In *Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned*, eds. Adam Lajeunesse and P. Whitney Lackenbauer, 1-46. Fredericton: Gregg Centre for the Study of War & Society, 2017.
- Dean, Ryan, P. Whitney Lackenbauer, and Adam Lajeunesse. *Canadian Arctic Defence Policy: A Synthesis of Key Documents, 1970-2013*. DCASS No. 1. Calgary and Waterloo: CMSS/CFPF, 2014.
- Delaney, Jason. "'He Was Writing the Book' - Lieutenant Commander James P. Croal: The Royal Canadian Navy's Cold War Arctic Specialist." *Northern Mariner* 25, no. 4 (October 2015): 399-412.
- Delaney, Jason M., and Michael Whitby. "'The Very Image of a Man of the Arctic': Commodore O.C.S. Robertson." *Canadian Naval Review* 4, no. 4 (Winter 2009): 25-29.

- Eyre, Kenneth C. *Custos Borealis: The Military in the Canadian North, 1898-1975*. Edited with an afterword by P. Whitney Lackenbauer. Peterborough: North American and Arctic Defence and Security Network (NAADSN), 2020.
- Farish, Matthew. *The Contours of America's Cold War*. Minneapolis: University of Minnesota Press, 2010.
- Farish, Matthew. "Frontier Engineering: From the Globe to the Body in the Cold War Arctic." *The Canadian Geographer / Le Géographe Canadien* 50, no. 2 (2006): 177-96.
- Farish, Matthew, and P. Whitney Lackenbauer. "High Modernism in the Arctic: Planning Frobisher Bay and Inuvik." *Journal of Historical Geography* 35, no. 3 (2009): 517-44.
- Farish, Matthew, and P. Whitney Lackenbauer. "Western Electric Turns North: Technicians and the Transformation of the Cold War Arctic." In *Ice Blink: Navigating Northern Environmental History*, eds. Stephen Bocking and Brad Martin, 261-92. Calgary: University of Calgary Press, 2016.
- Goette, Richard, and P. Whitney Lackenbauer, eds. *Northern Skytrails: Perspectives on the Royal Canadian Air Force in the Arctic from the Pages of The Roundel, 1949-65*. DCASS No. 10. Calgary and Waterloo: CMSS/CFPF/AINA, 2017.
- Grant, Shelagh D. *Polar Imperative: A History of Arctic Sovereignty in North America*. Vancouver: Douglas & McIntyre, 2010.
- Heidt, Daniel. "Clenched in the JAWS of America? Canadian Sovereignty and the Joint Arctic Weather Stations, 1946-1972." In *Canadian Arctic Sovereignty and Security: Historical Perspectives*, ed. P. Whitney Lackenbauer, 145-70. Calgary Papers in Military and Strategic Studies, No. 4. Calgary: CMSS/University of Calgary Press, 2011.
- Heidt, Daniel. "Revisiting Joseph Jockel's *No Boundaries Upstairs*." *International Journal* 70, no. 2 (2015): 339-49.
- Heidt, Daniel, and P. Whitney Lackenbauer. *The Joint Arctic Weather Stations: Science and Sovereignty in the High Arctic, 1946-1972*. Calgary: University of Calgary Press, 2022.
- Herd, Alexander W.G. "A 'Common Appreciation': Eisenhower, Canada, and Continental Air Defense, 1953-1954." *Journal of Cold War Studies* 13, no. 3 (2011): 4-26.
- Hird, Myra. "The DEW Line and Canada's Arctic Waste: Legacy and Futurity." *Northern Review* 42 (2016): 23-45.

- Jones-Imhotep, Edward. *The Unreliable Nation: Hostile Nature and Technological Failure in the Cold War*. Cambridge, Massachusetts: MIT Press, 2017.
- Kikkert, Peter. "Constructing a Role: The Royal Canadian Air Force in the Arctic, 1945-1953." In *De-Icing Required!: The Historical Dimension of the Canadian Air Force's Experience in the Arctic*, eds. P. Whitney Lackenbauer and W.A. March, 17-30. Canadian Aerospace Power Studies Series Vol. 4. Trenton: Canadian Forces Air Warfare Centre, 2012.
- Kikkert, Peter, and P. Whitney Lackenbauer. "The Militarization of the Arctic to 1990." In *The Palgrave Handbook of Arctic Policy and Politics*, eds. Ken S. Coates and Carin Holroyd, 487-505. Cham: Palgrave Macmillan, 2020.
- Kikkert, Peter, and P. Whitney Lackenbauer. "Setting an Arctic Course: Task Force 80 and Canadian Control in the Arctic, 1948." *Northern Mariner* 21, no. 4 (October 2011): 327-58.
- Kikkert, Peter, Adam Lajeunesse, and P. Whitney Lackenbauer. "Lester Pearson, the United States, and Arctic Sovereignty: A Case of Un-Pearsonian Diplomacy?" In *Mike's World: Lester B. Pearson and Canadian External Relations*, eds. Asa McKercher and Galen Roger Perras, 149-68. Vancouver: UBC Press, 2017.
- Lackenbauer, P. Whitney. "Agency in High [Arctic] Modernization." In *Many Norths: Spatial Practice in a Polar Territory*, eds. Lola Sheppard and Mason White, 331-40. New York: Actar Publishers, 2017.
- Lackenbauer, P. Whitney. "The Canadian Rangers: Supporting Canadian Sovereignty, Security, and Stewardship since 1947." *Above & Beyond: Canada's Arctic Journal* (September/October 2012): 31-36.
- Lackenbauer, P. Whitney, ed. *The Canadian Rangers @ 75: Key Documents, 1947-2022*. DCASS No. 19. Calgary and Peterborough: CMSS/NAADSN/AINA, 2022.
- Lackenbauer, P. Whitney. "Defence, Development, and Inuit: St-Laurent's Modern Approach to the North." In *The Unexpected Louis St-Laurent: Politics and Policies for a Modern Canada*, ed. Patrice Dutil, 193-221. Vancouver: UBC Press, 2020.
- Lackenbauer, P. Whitney, ed. *Operation CANON: Rescuing Canon John Turner in the Canadian Arctic, 1947*. Arctic Operational History Series No. 11. Antigonish: Brian Mulroney Institute of Government, 2022.
- Lackenbauer, P. Whitney. "Race, Gender, and International 'Relations': African Americans and Aboriginal People on the Margins in Canada's North, 1942-48." In *Dominion of Race: Rethinking Canada's International*

- History*, eds. Laura Madokoro, Francine McKenzie, and David Meren, 112-38. Vancouver: UBC Press, 2017.
- Lackenbauer, P. Whitney. *Vigilans: The 1st Canadian Ranger Patrol Group*. Yellowknife: 1st Canadian Ranger Patrol Group, 2015.
- Lackenbauer, P. Whitney, and Ryan Dean. "Applied Science and Practical Cooperation: Operation Morning Light and the Recovery of Cosmos 954 in the Northwest Territories, 1978." In *Cold Science: Environmental Knowledge in the North American Arctic During the Cold War*, eds. Stephen Bocking and Daniel Heidt, 236-55. New York: Routledge, 2019.
- Lackenbauer, P. Whitney, and Elizabeth Elliot-Meisel, eds. "*One of the Great Polar Navigators*": *Captain T.C. Pullen's Personal Records of Arctic Voyages, Part 1: Government Roles*. DCASS No. 12. Calgary and Waterloo: CMSS/CFPF/AINA, 2018.
- Lackenbauer, P. Whitney, and K.C. Eyre, eds. *Unfurling the Air Force Ensign in the Canadian Arctic: The 1922 Eastern Arctic and 1927-28 Hudson Strait Expeditions*. DCASS No. 3. Calgary and Waterloo: CMSS/CFPF, 2015.
- Lackenbauer, P. Whitney, and Matthew Farish, eds. *The Distant Early Warning (DEW) Line Coordinating Committee: Minutes and Progress Reports, 1955-63*. DCASS No. 15. Calgary and Waterloo: CMSS/CFPF/AINA, 2019.
- Lackenbauer, P. Whitney, Matthew J. Farish, and Jennifer Arthur-Lackenbauer. *The Distant Early Warning (DEW) Line: A Bibliography and Documentary Resource List*. Calgary: AINA, 2005.
- Lackenbauer, P. Whitney, and Shelagh D. Grant, eds. "*The Adventurous Voyage*": *St. Roch and the Northwest Passage, 1940-42 and 1944*. Arctic Operational Histories No. 7. Antigonish: Mulroney Institute of Government, 2019.
- Lackenbauer, P. Whitney, and Daniel Heidt, eds. *The Advisory Committee on Northern Development: Context and Meeting Minutes, 1948-71*. DCASS No. 4. Calgary and Waterloo: CMSS/CFPF, 2019 (revised).
- Lackenbauer, P. Whitney, and Daniel Heidt. "Leadership, Cultures, the Cold War and the Establishment of Arctic Scientific Stations: Situating the Joint Arctic Weather Stations (JAWS)." In *Cold Science: Environmental Knowledge in the North American Arctic During the Cold War*, eds. Stephen Bocking and Daniel Heidt, 42-60. New York: Routledge, 2019.
- Lackenbauer, P. Whitney, and Peter Kikkert. *The Canadian Forces and Arctic Sovereignty: Debating Roles, Interests and Requirements, 1968-1974*. Waterloo: Laurier Centre for Military Strategic and Disarmament Studies/Wilfrid Laurier University Press, 2010.

- Lackenbauer, P. Whitney, and Peter Kikkert, eds. *Lessons in Northern Operations: Canadian Army Documents, 1945-56*. DCASS No. 7. Calgary and Waterloo: CMSS/CFPF/AINA, 2016.
- Lackenbauer, P. Whitney, and Peter Kikkert, eds. *Tracks North: The Story of Exercise Muskox*. Arctic Operational Histories No. 5. Antigonish: Mulroney Institute of Government, 2018.
- Lackenbauer, P. Whitney, and Adam Lajeunesse, eds. *In Manhattan's Wake: Lieutenant Commander E.B. Stolee's Accounts of the Canadian Arctic Voyages of CCGS John A. Macdonald and Louis St. Laurent, 1969/70*. Arctic Operational History Series No. 8. Antigonish: Brian Mulroney Institute of Government, 2019.
- Lackenbauer, P. Whitney, Adam Lajeunesse, and Lieutenant (N) Jason Delaney, eds. *HMCS Labrador: An Operational History*. Arctic Operational History Series No. 1. Antigonish: Mulroney Institute of Government, 2017.
- Lackenbauer, P. Whitney, and Willam A. March. *De-Icing Required!: The Historical Dimension of the Canadian Air Force's Experience in the Arctic*. Canadian Aerospace Power Studies Series Vol. 4. Trenton: Canadian Forces Air Warfare Centre, 2012.
- Lackenbauer, P. Whitney, with Stéphane Roussel and Magali Vullierme. *A History of the Canadian Rangers of Quebec: 2nd Canadian Ranger Patrol Group*. Richelain and Peterborough: 2nd Canadian Ranger Patrol Group/NAADSN, 2022.
- Lackenbauer, P. Whitney, and Ryan Shackleton. *When the Skies Rained Boxes: The Air Force and the Qikiqtani Inuit, 1941-64*. Working Papers on Arctic Security No. 4. Toronto: Walter and Duncan Gordon Foundation and ArcticNet Arctic Security Projects, October 2012.
- Lajeunesse, Adam. "The Gentlemen's Agreement: Sovereignty, Defence, and Canadian-American Diplomacy in the Arctic." In *Breaking Through: Understanding Sovereignty and Security in the Circumpolar Arctic*, eds. Wilfrid Greaves and P. Whitney Lackenbauer, 45-61. Toronto: University of Toronto Press, 2021.
- Lajeunesse, Adam. *Lock, Stock, and Icebergs: A History of Canada's Arctic Maritime Sovereignty*. Vancouver: UBC Press, 2016.
- Lajeunesse, Adam. "A Very Practical Requirement: Under-Ice Operations in the Canadian Arctic, 1960-1986." *Cold War History* 13, no. 4 (2013): 507-24.
- Lajeunesse, Adam. "Watching the Arctic Ocean: Lessons from the Cold War." *Canadian Naval Review* 12, no. 3 (Fall 2016): 4-8.

- Lajeunesse, Adam, and Bill Carruthers. "The Ice Has Ears." *Canadian Naval Review* 9, no. 3 (Winter 2013): 4-9.
- Lajeunesse, Adam, and P. Whitney Lackenbauer, eds. *Canadian Arctic Operations, 1941-2015: Lessons Learned, Lost, and Relearned*. Fredericton: Gregg Centre for the Study of War & Society, 2017.
- Lajeunesse, Adam, and P. Whitney Lackenbauer. "Opening an Arctic Escape Route: The Bellot Strait Expedition." *Northern Mariner* 31, no. 1 (Spring 2021): 1-10.
- Noakes, Jeff, and P. Whitney Lackenbauer, eds. *Special Contract: A Story of Defence Communications in Canada*. Arctic Operational History Series No. 6. Antigonish: Mulroney Institute of Government, 2019.
- Smith, Gordon W., and P. Whitney Lackenbauer. "'This was not the time for this type of 1890 imperialism': Cryolite, Control, and Canada-US Relations over Greenland, 1940." *The Northern Mariner* 31, no. 3 (2021): 241-84.
- Teeple, Nancy. "A Brief History of Intrusions into the Canadian Arctic." *Canadian Army Journal* 12, no. 3 (2010): 45-68.
- Trudgen, Matthew. "Coping with Fallout: The Influence of Radioactive Fallout on Canadian Decision-Making on the Distant Early Warning (DEW) Line." *International Journal* 70, no. 2 (June 2015): 232-49.
- Watson, Scott. "Macrosecuritization and the Securitization Dilemma in the Canadian Arctic." *Critical Studies on Security* 1, no. 3 (2013): 265-79.
- Wiseman, Matthew S. "Canadian Scientists and Military Research in the Cold War, 1947-60." *Canadian Historical Review* 100, no. 3 (September 2019): 439-63.
- Wiseman, Matthew S. "The Development of Cold War Soldierly: Acclimatisation Research and Military Indoctrination in the Canadian Arctic, 1947-1953." *Canadian Military History* 24, no. 2 (Summer/Autumn 2015): 127-55.
- Wiseman, Matthew S. "Unlocking the 'Eskimo Secret': Defence Science in the Cold War Canadian Arctic, 1947-1954." *Journal of the Canadian Historical Association* 26, no. 1 (2015): 191-223.
- Woitkowitz, John. "The Northern Education of Lester B. Pearson." *Zeitschrift für Kanada-Studien* 37 (2017): 77-98.
- Wood, Edward P. *Per Ardua Ad Arcticum: The Royal Canadian Air Force in the Arctic and Sub-Arctic*. Ed. P. Whitney Lackenbauer. Arctic Operational History Series No. 2. Antigonish: Mulroney Institute of Government, 2017.

International Law

- Baker, James S., and Michael Byers. "Crossed Lines: The Curious Case of the Beaufort Sea Maritime Boundary Dispute." *Ocean Development & International Law* 43, no. 1 (2012): 70-95.
- Bankes, Nigel, and Maria Madalena das Neves. "The United Nations Convention on the Law of the Sea and the Arctic Ocean." In *The Palgrave Handbook of Arctic Policy and Politics*, eds. Ken S. Coates and Carin Holroyd, 375-91. Cham: Palgrave Macmillan, 2020.
- Bartenstein, Kristin. "The 'Arctic Exception' in the Law of the Sea Convention: A Contribution to Safer Navigation in the Northwest Passage?" *Ocean Development & International Law* 42, no. 1-2 (2011): 22-52.
- Bartenstein, Kristin. "Between the Polar Code and Article 234: The Balance in Canada's Arctic Shipping Safety and Pollution Prevention Regulations." *Ocean Development & International Law* 50, no. 4 (2019): 335-62.
- Bartenstein, Kristin. "The 'Common Arctic': Legal Analysis of Arctic & non-Arctic Political Discourses." *Arctic Yearbook* 264 (2015): 264-80.
- Boulanger, Marine, and Frédéric Lasserre. "La délimitation maritime en mer de Beaufort, entre immobilisme et indifférence?" *L'Espace politique* 42, no. 3 (2021).
- Byers, Michael. "Arctic Security and Outer Space." *Scandinavian Journal of Military Studies* 3, no. 1 (2020): 183-96.
- Byers, Michael. *International Law and the Arctic*. Cambridge: Cambridge University Press, 2013.
- Byers, Michael. "The Law and Politics of the Lomonosov Ridge." In *Challenges of the Changing Arctic: Continental Shelf, Navigation, and Fisheries*, eds. Myron H. Nordquist, John Norton Moore, and Ronán Long, 42-52. Leiden: Brill Nijhoff, 2016.
- Byers, Michael. "Negotiate the Northwest Passage, Before It's Too Late: Updating the 1988 Arctic Cooperation Agreement." In *North of 60: Toward a Renewed Canadian Arctic Agenda*, eds. John Higginbotham and Jennifer Spence, 77-81. Waterloo: Centre for International Governance Innovation, 2016.
- Byers, Michael. "Time to negotiate the Northwest Passage with the United States." *Policy Options* 32, no. 9 (2011): 68-71.
- Byers, Michael, and Cameron Byers. "Toxic Splash: Russian Rocket Stages Dropped in Arctic Waters Raise Health, Environmental and Legal Concerns." *Polar Record* 53, no. 6 (November 2017): 580-91.

- Byers, Michael, and Emma Lodge. "China and the Northwest Passage." *Chinese Journal of International Law* 18, no. 1 (March 2019): 57-90.
- Byers, Michael, and Andreas Østhagen. "Settling Maritime Boundaries: Why Some Countries Find It Easy, and Others Do Not." In *The Future of Ocean Governance and Capacity Development: Essays in Honor of Elisabeth Mann Borgese (1918-2002)*, eds. Dirk Werle et al., 162-68. Leiden: Brill Nijhoff, 2018.
- Byers, Michael, and Andreas Østhagen. "Why Does Canada Have So Many Unresolved Maritime Boundary Disputes?" *Canadian Yearbook of International Law/Annuaire canadien de droit international* 54 (2017): 1-62.
- Cavell, Janice. "The Sector Theory and the Canadian Arctic, 1897-1970." *The International History Review* 41, no. 6 (2019): 1168-93.
- Charron, Andrea. "Contesting the Northwest Passage: Four Far-North Narratives." In *Border Flows: A Century of the Canadian-American Water Relationship*, eds. Lynne Heasley and Daniel Macfarlane, 87-110. Calgary: University of Calgary Press, 2016.
- Chircop, Aldo, Peter G. Pamel, and Miriam Czarski. "Canada's Implementation of the Polar Code." *Journal of International Maritime Law* 24, no. 6 (2018): 428-50.
- Geddert, Jeremy Seth. "Right of (Northwest) Passage: Toward a Responsible Canadian Arctic Sovereignty." *Canadian Journal of Political Science* 52, no. 3 (2019): 595-612.
- Huebert, Rob. "Drawing Boundaries in the Beaufort Sea: Different Visions/Different Needs." *Journal of Borderlands Studies* 33, no. 2 (2018): 203-23.
- Huebert, Rob. "Elisabeth Mann Borgese, UNCLOS, and the Arctic: The Power of Normative Thinking and Her Legacy." In *The Future of Ocean Governance and Capacity Development: Essays in Honor of Elisabeth Mann Borgese (1918-2002)*, eds. Dirk Werle et al., 175-80. Leiden: Brill Nijhoff, 2018.
- Huebert, Rob. "The Melting Ice and the Transforming Arctic Ocean." *Ocean Yearbook Online* 31, no. 1 (2017): 55-79.
- Huebert, Rob. "Submarines, Oil Tankers, and Icebreakers: Trying to Understand Canadian Arctic Sovereignty and Security." *International Journal* 66, no. 4 (Autumn 2011): 809-24.
- Kessel, Alan H. "Canadian Arctic Sovereignty: Myths and Realities." In *Governing the North American Arctic: Sovereignty, Security, and*

- Institutions*, eds. Dawn Alexandra Berry, Nigel Bowles, and Halbert Jones, 242-46. London: Palgrave Macmillan, 2016.
- Kikkert, Peter, "In Search of Polar Sovereignty, 1900-1959." In *Breaking Through: Understanding Sovereignty and Security in the Circumpolar Arctic*, eds. Wilfrid Greaves and P. Whitney Lackenbauer, 25-43. Toronto: University of Toronto Press, 2021.
- Kikkert, Peter, and P. Whitney Lackenbauer, eds. *Legal Appraisals of Canada's Arctic Sovereignty: Key Documents, 1905-56*. DCASS No. 2. Calgary and Waterloo: CMSS/CFPF, 2014.
- Lackenbauer, P. Whitney, and Peter Kikkert. "Archipelagic Analogues? Indonesian Baselines, Canadian Arctic Sovereignty, and the Framing of Mental Maps, 1957-62." *International Journal of Canadian Studies* 50 (2014): 227-51.
- Lackenbauer, P. Whitney, and Peter Kikkert. "The Dog in the Manger—and Letting Sleeping Dogs Lie: The United States, Canada and the Sector Principle, 1924-1955." In *International Law and Politics of the Arctic Ocean: Essays in Honor of Donat Pharand*, eds. Suzanne Lalonde and Ted L. McDorman, 216-39. Leiden: Brill Nijhoff, 2015.
- Lackenbauer, P. Whitney, and Suzanne Lalonde. "Arctic Sovereignty." In *Lines in the Snow: Thoughts on the Past and Future of Northern Canadian Policy Issues*, eds. Clive Tesar and P. Whitney Lackenbauer, 202-20. Ottawa: Canadian Arctic Resources Committee, 2021.
- Lackenbauer, P. Whitney, and Suzanne Lalonde. "The Territorial North and Canada's International Arctic Security." In *The Networked North: Borders and Borderlands in the Canadian Arctic Region*, eds. Heather Nicol and P. Whitney Lackenbauer, 95-113. Waterloo and Victoria: CFPF/Borders in Globalization, 2017.
- Lackenbauer, P. Whitney, Suzanne Lalonde, and Elizabeth Riddell-Dixon. *Canada and the Maritime Arctic: Boundaries, Shelves, and Waters*. Peterborough: NAADSN, 2020.
- Lackenbauer, P. Whitney, and Rasmus Leander Nielsen. "'Close, like-minded partners committed to democratic principles': Settling the Hans Island/Tartupaluk Territorial Dispute." *Arctic Yearbook 2022*, eds. Lassi Heininen, Heather Exner-Pirot, and Justin Barnes, 1-11. Akureyri: Northern Research Forum, 2022.
- Lajeunesse, Adam, ed. *Documents on Canadian Arctic Maritime Security, 1950-1988*. DCASS No. 13. Calgary and Waterloo: CMSS/CFPF/AINA, 2018.

- Lajeunesse, Adam, and Rob Huebert, eds. *From Polar Sea to Straight Baselines: Canadian Arctic Policy in the Mulroney Era*. DCASS No. 11. Calgary and Waterloo: CMSS/CFPF/AINA, 2017.
- Lalonde, Suzanne. "The IMO's PSSA Mechanism and the Debate Over the Northwest Passage." In *Polar Oceans Governance in an Era of Environmental Change*, eds. Tim Stephens and David L. VanderZwaag, 166-85. New Horizons in Environmental and Energy Law Series. Cheltenham: Edward Elgar, 2014.
- Lalonde, Suzanne. "The Northwest Passage and Northern Sea Route: Sovereignty and Responsibilities." In *Global Challenges in the Arctic Region: Sovereignty, Environment and Geopolitical Balance*, eds. Elena Conde and Sara Iglesias Sánchez, 42-74. London: Routledge, 2017.
- Lalonde, Suzanne, Aslan Abashidze, and Alexander Solntsev. "Marine Protected Areas and Other Effective Area-based Conservation Measures." *Arctic Review on Law and Politics* 13 (2022): 312-37.
- Lalonde, Suzanne, and Frédéric Lasserre. "The Position of the United States on the Northwest Passage: Is the Fear of Creating a Precedent Warranted?" *Ocean Development & International Law* 44, no. 1 (2013): 28-72.
- Lalonde, Suzanne, and Ted L. McDorman, eds. *International Law and Politics of the Arctic Ocean: Essays in Honor of Donat Pharand*. Leiden: Brill Nijhoff, 2015.
- Lasserre, Frédéric. "Les revendications sur les plateaux continentaux étendus en Arctique, sous le signe de la coopération." *Regards géopolitiques – Bulletin du Conseil québécois d'Études géopolitiques* 6, no. 2 (2020): 2-14.
- Macneill, Christopher Mark. "A Trip to Lomonosov Ridge: The Arctic, UNCLOS, and 'Off the Shelf' Sovereignty Claims." *Journal of Environmental Law and Litigation* 35 (2020): 227-60.
- McDorman, Ted L. "Canada, the United States and International Law of the Sea in the Arctic Ocean." In *Polar Oceans Governance in an Era of Environmental Change*, eds. Tim Stephens and David L. VanderZwaag, 253-68. New Horizons in Environmental and Energy Law Series. Cheltenham: Edward Elgar, 2014.
- McDorman, Ted L. "The Continental Shelf." In *The Oxford Handbook of the Law of the Sea*, eds. Donald R. Rothwell, Alex G. Oude Elferink, Karen N. Scott, and Tim Stephens, 181-202. Oxford: Oxford University Press, 2015.
- McDorman, Ted L. "The Continental Shelf Regime in the Law of the Sea Convention: A Reflection on the First Thirty Years." *The International Journal of Marine and Coastal Law* 27, no. 4 (2012): 743-51.

- Riddell-Dixon, Elizabeth. *Breaking the Ice: Canada, Sovereignty, and the Arctic Extended Continental Shelf*. Toronto: Dundurn, 2017.
- Riddell-Dixon, Elizabeth. "Meeting the Deadline: Canada's Arctic Submission to the Commission on the Limits of the Continental Shelf." *Ocean Development & International Law* 42, no. 4 (2011): 368-82.
- Riddell-Dixon, Elizabeth. "The Seven-Decade Quest to Maximize Canada's Continental Shelf." *International Journal* 69, no. 3 (September 2014): 422-43.
- Smith, Gordon W. *A Historical and Legal Study of Sovereignty in the Canadian North, 1870-1942: Terrestrial Sovereignty*, ed. P. Whitney Lackenbauer. Calgary: University of Calgary Press, 2014.
- Stephen, Tim, and David VanderZwaag, eds. *Polar Oceans Governance in an Era of Environmental Change*. New Horizons in Environmental and Energy Law Series. Cheltenham: Edward Elgar, 2014.
- VanderZwaag, David L. "Canada and the Governance of the Northwest Passage: Rough Waters, Cooperative Currents, Sea of Challenges." In *Navigating Straits: Challenges for International Law*, eds. David D. Caron and Nilufer Oral, 87-121. Leiden: Brill Nijhoff, 2014.
- VanderZwaag, David L. "Governance of the Arctic Ocean beyond National Jurisdiction: Cooperative Currents, Restless Sea." In *Ocean Law Debates*, eds. Harry N. Scheiber, Nilufer Oral, and Moon-Sang Kwon, 401-18. Leiden: Brill Nijhoff, 2018.
- Verhoef, Jacob, and Julian Goodyear. "Defining Canada's Extended Continental Shelf in the Arctic." *Meridian* (Spring/Summer 2011): 1-8.
- Verhoef, Jacob, David C. Mosher, and Stephen R. Forbes. "Defining Canada's Extended Continental Shelves." In *Voyage of Discovery: Fifty Years of Marine Research at Canada's Bedford Institute of Oceanography*, eds. D.N. Nettleship, D.C. Gordon, C.F.M. Lewis, and M.P. Latremouille, 407-14. Dartmouth: Bedford Institute of Oceanography, 2014.
- Verhoef, Jacob, David Mosher, and Steve Forbes. "Defining Canada's Extended Continental Shelves." *Geoscience Canada* 38, no. 2 (June 2011): 85-96.



Canadian Arctic Sovereignty and Security

Volume 2: Historical and Legal Perspectives

Edited by P. Whitney Lackenbauer

“The most urgent and important task we face is asserting Canada’s sovereignty in the Arctic and northern regions, where the changing physical and geopolitical landscapes have created new threats and vulnerabilities to Canada and Canadians” Canada’s April 2024 defence policy update proclaimed. Offering readers with an overview of ideas about sovereignty, security, and international law in the Canadian Arctic since the end of the Second World War, this volume brings diverse research contributions into dialogue and seeks to lay a foundation for future research that helps students, scholars, and policy makers as they frame and shape historiographical and policy debates.

Contributors: P. Whitney Lackenbauer, Kenneth Eyre, Peter Kikkert, Richard O. Mayne, Matthew Wiseman, Richard Goette, Daniel Heidt, Adam Lajeunesse, Ryan Dean, Shelagh Grant, Ted McDorman, Suzanne Lalonde, Frédéric Lasserre, Michael Byers, Andreas Østhaugen, Rasmus Leander Nielsen, Kristin Bartenstein, Laure Gosselin



UNIVERSITY OF
CALGARY

CENTRE FOR MILITARY, SECURITY AND STRATEGIC STUDIES