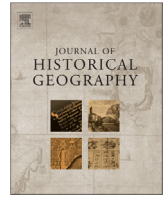




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Science, Environment, and the New Arctic

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Abstract

This essay underlines the timely importance of research into historical geographies of science and technology as a basis for better understanding the emerging 'New' Arctic, where climate change has heightened international interest in northern navigation routes and mineral exploitation. It introduces five studies from two international collaborative research projects: 'Colony, Empire, Environment' (funded by the BOREAS Program, European Science Foundation) and 'Large-Scale Industrial Exploitation of Polar Areas' (LASHIPA, funded by the Dutch and Swedish Research Councils), situating them in terms of changing interpretations of the Arctic and its environment primarily since the late nineteenth century.

With emphasis on the role of science and technology in the production of knowledge about the environment of the far north, these five studies highlight significant shifts in the conception and utilization of the Arctic – from heroic representations of Arctic exploration through the International Polar Year (1932–1933), the post-1945 militarization of the Arctic, the International Geophysical Year (1957–1958), and the subsequent recasting of the Arctic as a fragile environmental bellwether – using comparative and transnational approaches to reconsider Arctic historical geographies of science and technology within the larger frameworks of recent regional, colonial, and postcolonial studies.

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But how shall I hear old music? This is an hour
Of new beginnings, concepts warring for power,
Decay of systems – the tissue of art is torn
With overtures of an era being born.

—F.R. Scott (1899–1985), Overture (1934)—

The Arctic is changing, and so are perceptions of it. In 2001, as the United States federal government planned to open Alaska's Arctic National Wildlife Refuge for oil drilling, the *New York Times* declared that 'Where nature was once perceived as hostile and disastrously potent, it is now fragile'. Since then, important new climatic, economic, technological, and geopolitical exigencies have conspired to inaugurate what some scholars

recognize as a 'post-polar era'. 'Nothing,' as the legal expert Jonathan D. Greenberg recently observed, 'and yet everything, has changed'. As this New Arctic emerges, we can identify, assess, and appreciate what is qualitatively new – and potentially game-changing – through an informed historical awareness.¹

We use the term 'New Arctic' to refer to a recent era in circumpolar history set in motion by an unparalleled confluence of political and natural phenomena. Among its harbingers, the Arctic Peoples Conference in Copenhagen in 1973 and the conference of the World Council of Indigenous Peoples in Port Alberni, British Columbia in 1975 led to the first Inuit Circumpolar Conference at Barrow, Alaska in 1977, representing the

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¹ S.H. Verhovek, The nation: ah, wilderness; the void without the 'great beyond', *The New York Times*, 18 February 2001; No escape: thaw gains momentum, *The New York Times*, 25 October 2005; K. Mackrael, Arctic pack ice hits all-time low, *Toronto Globe and Mail*, 31 August 2012; We borrow the felicitous term 'post-polar' from M. Bravo, 'Preface: legacies of polar science', in: J.M. Shadian and M. Tennberg (Eds), *Legacies and Change in Polar Sciences: Historical, Legal and Political Reflections on the International Polar Year*, Farnham, 2009, xiv; see also J.D. Greenberg, The arctic in world environmental history, *Vanderbilt Journal of Transnational Law* 2/4 (2009) 1384, 1392. The term 'new Arctic' appears in O.R. Young, Building an international regime complex for the arctic: current status and next steps, *The Polar Journal* 2, 2 (2012) 391–407; see also A. Stuhl, The politics of the 'New North': putting history and geography at stake in Arctic futures, *The Polar Journal* 3, 1 (January 2013) 94–119 [<http://www.tandfonline.com/loi/rpol20>, accessed 23 July 2013].

interests of the region's 'one indivisible people'. A groundbreaking speech delivered in Murmansk a decade later by the Soviet statesman Mikhail Gorbachev heralded an Arctic newly open to scientific and economic collaboration. Signalling a new Russian willingness to embark upon international cooperation in the Arctic in four key areas (energy planning, environmental protection, scientific cooperation, and transportation), Gorbachev also broached the need for an Arctic Council. Established in 1996, this high-level multilateral institution of Arctic governance began focusing on environmental and indigenous issues, along with the peaceful and sustainable utilization of northern resources.² This significant turn away from national *Realpolitik* toward geo-economic thinking based on global concerns joined growing commercial interest in the Arctic's raw materials to form the basis for new international alliances. The dramatic melting of Arctic ice calls for multilateral efforts to deal with the widespread implications of climate change, alongside growing prospects for international shipping through shorter Arctic sea-links between major centres of world trade in Europe, Southeast Asia, and North America (Fig. 1).³ The sum of these developments is a New Arctic replete with challenges as well as opportunities.

Western culture has historically represented the circumpolar north as frontier rather than homeland – *Ultima Thule*, not *Nunavut*.⁴ Even now, narratives of heroic adventures continue to populate bookstore shelves: their north remains a forbidding, virtually uninhabited, remote world where individual European explorers could test themselves (and reflect glory on their country) by mapping unknown realms encountered as they raced to the pole.⁵ Yet their work also supports Greenberg's arresting reminder that 'the Arctic has never existed at the margins or periphery of world environmental history', but rather 'at its heart' (Fig. 2).⁶ As early as the polar voyages of William Parry (1790–1855) in 1824, the Scottish geologist Robert Jameson (1774–1854) reported surprising palaeontological evidence that the Arctic had once 'supported forests of dicotyledonous trees,' raising long-term questions about the region's apparently dynamic climatic history. One might, then, seek environmental knowledge of the north and consider it as a site of the field practices from which scientific knowledge has been constructed.⁷

Earlier 'generations of frosty-whiskered European explorers'⁸ who braved nature in the extreme while embracing national

competition gave way by the early 1930s to a distinct generation of specialized scientists–explorers–logistics managers keen to sharpen their understanding of the Arctic environment. The attainment of both the North and South Poles by means of adapted indigenous dogsleds in 1909 and 1911, respectively, ended what had long been glorified in various media as an international race among national competitors. Modern logistical developments, including remedies for scurvy and the possibility of air travel under polar conditions, altered the basis for conducting both industry and science in the Arctic. These changes transformed polar exploration and research from a feat of individual endurance to a matter of access to capital investment and advanced technology.⁹

New interest in establishing maritime and aerial transportation routes, as well as to modernize the means of extracting Arctic natural resources, motivated further development along these lines. New forms of international cooperation, from the First International Polar Year (IPY) (1882–1883) through the founding of the Aeroarctic Society (1926) and the Second IPY (1932–1933), were challenged by those who began after 1945 to envision the Arctic as a militarized buffer between East and West. 'The world's two great military powers – Russia and the United States', the Scripps-Howard correspondent (and later Pulitzer Prize winner) J.G. Lucas wrote in 1948, 'face [one another] across the top of the world where tentative battle lines have already been drawn'. Yet despite the hostility that marked the Cold War, a remarkable tradition of collaborative scientific research in polar regions continued in the International Geophysical Year (IGY) (1957–1958) that included both Eastern- and Western-Bloc participation. For although ideals of international collaboration suffered after both World Wars, the compelling logic of sharing results, data, and theories that were fundamental to polar field science won out more often than not.¹⁰

In contrast to so much that had gone before, the present century saw the north enter the headlines under a new guise, as Cold-War fears of a 'nuclear winter' – rapid cooling after a large nuclear exchange – gave way to more complex experiences of climate change.¹¹ In particular, rapidly rising temperatures not only revived longstanding dreams of a trans-Arctic sea route, but actually began to realize them. The end of the Cold War and the transition to a market economy in the new Russian Federation have, moreover, refocused global market interests in the Arctic's wealth of raw materials – no longer limited to whale oil, marine mammal blubber, walrus tusks, and coal, but now including natural gas, oil, and rare

² On the Inuit Circumpolar Council: <http://inuitcircumpolar.com>, accessed 28 August 2012; D. Scrivener, *Gorbachev's Murmansk Speech: The Soviet Initiative and Western Responses*, Oslo, 1989; on the Arctic Council: <http://www.arctic-council.org>, accessed 28 August 2012; P. Koring, Canada signals new era for Arctic Council, *Toronto Globe and Mail*, 16 May 2013; J. English, *Ice and Water: Politics, Peoples, and the Arctic Council*, Toronto, 2013; S. Watt-Cloutier, *The Right To Be Cold*, Toronto, forthcoming.

³ U. Wråkberg (Ed), *Futures of Northern Cross-Border Collaboration*, Tromsø, 2013.

⁴ Greenberg, Arctic in world environmental history (note 1), 1309–1312.

⁵ See for example P. Berton, *The Arctic Grail: The Quest for the North West Passage and the North Pole, 1818–1909*, Toronto, 1988; S. Wheeler, *The Magnetic North: Notes from the Arctic Circle*, New York, 2009.

⁶ Greenburg, Arctic in world environmental history (note 1), 1383.

⁷ J.V. Pickstone, Working knowledges before and after circa 1800: practices and disciplines in the history of science, technology, and medicine, *Isis* 98, 3 (September 2007) 489–516; R. Jameson, Geology, in: W.E. Parry, *Journal of a Third Voyage for the Discovery of a North-West Passage from the Atlantic to the Pacific*, Philadelphia, 1826, 231, reprinted as General observations on the former and present geological condition of the countries discovered by Captains Parry and Ross, *Edinburgh New Philosophical Journal* 4, 4 (April 1827) 105; T.H. Levere, *Science in the Canadian Arctic: A Century of Exploration 1818–1918*, Cambridge, 1993, 84.

⁸ J. Astill, The melting north, *The Economist Special Report: The Arctic* (16 June 2012) 3.

⁹ C.J. Ries, Lauge Koch and the mapping of north east Greenland: tradition and modernity in Danish Arctic research 1920–1940, in: M. Bravo, S. Sörlin (Eds), *Narrating the Arctic: A Cultural History of Nordic Scientific Practices*, Canton, MA, 2002, 199–231; C.J. Ries, Maps, armchairs, dogsleds, ships and airplanes: field technology, scientific credibility and geological mapping in northern and north-eastern Greenland 1870–1935, in: K.H. Nielsen, M. Harbsmeier, C.J. Ries (Eds), *Scientists and Scholars in the Field: Studies in the History of Fieldwork and Expeditions*, Aarhus, 2012, 329–361.

¹⁰ L. Ellsworth and E.H. Smith, Report of the preliminary results of the aeroarctic expedition with *Graf Zeppelin*, 1931, *Geographical Review* 21, 1 (January 1932) 61; C. Lüdecke and J. Lajus, Second International Polar Year (1932–1933), in: S. Barr, C. Lüdecke (Eds), *The History of the International Polar Years*, Berlin and Heidelberg, 2010, 135–174; J.G. Lucas, draft article, appended to Canadian Ambassador (US) to Secretary of State for External Affairs, 14 October 1948, RG 24 DRBS 135-750-170, Library and Archives Canada; I. Krupnik with F.W.G. Baker, R. Bulkeley, F. Korsmo and C. Lüdecke, From IPY-1 to IGY: early lessons in making global science, in: I. Krupnik et al. (Eds), *Understanding Earth's Polar Challenges: International Polar Year 2007–2008*, Rovaniemi, 2011, 5–28; R.D. Launius, R.D. Fleming and D.H. DeVorkin (Eds), *Globalizing Polar Science: Reconsidering the International Polar and Geophysical Years*, New York, 2010.

¹¹ Contrast the dire (and misguided) language in L.C. Taylor, North Pole images reveal impact of climate change, *Toronto Star*, 27 July 2013 with R. Markley, Climate science, in: B. Clarke, M. Rossini (Eds), *The Routledge Companion to Literature and Science*, London and New York, 2011, 63; S. Sörlin and J. Lajus, An ice free Arctic Sea? The science of sea ice and its interests, in: M. Christensen, A.E. Nilsson, N. Wormbs (Eds), *Media and the Politics of Arctic Climate Change*, Basingstoke, 2013, 70–92.

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