

Liza Piper. *The Industrial Transformation of Subarctic Canada*. Vancouver: University of British Columbia Press, 2009. Illustrations, maps, tables. 424 pp. \$32.95, paper, ISBN 978-0-7748-1533-8.



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Liza Piper's *The Industrial Transformation of Subarctic Canada* considers the development of mineral and fishing industries on four lakes in northwestern Canada between the 1920s and 1960s—Lake Winnipeg, Lake Athabasca, Great Slave Lake, and Great Bear Lake. An environmental history, this book's objective is to "map the the human fingerprint" on these bodies of water as manifest in species populations; industrial waste; relationships among native residents, sojourning scientists, and government officials; and the transportation networks that link the lakes to international markets (p. 17). In reaching this goal, Piper engages and enlivens foundational arguments by William Cronon and Richard White about the commodification of nature, while integrating histories of environment and science.

The heart of Piper's book beats through the following claim: industrial relations "remained embedded in local ecosystems even though the administration and consumption of resources were distanced from local nature and economies" (p. 192). The author highlights the historiographic

force of this claim by situating it alongside Cronon's *Nature's Metropolis* (1992). Piper asserts that, contrary to Cronon, industrial operations did not divorce humans from nature. Rather, industry, science, and nature coadapted to one another following the demands of labor, the physical environment, governmental regulations, consumers, and to a lesser extent, local natives. Piper supports her argument by tracing the paths taken by natural resources throughout the lakes and beyond their shores. These paths include the circulation of minerals through artificial subterranean mining environments, the shipment of these minerals and various fish products to American markets, the transfer of observational data from jet-set geologists and fisheries biologists to Ottawa bureaucrats, the consumption and redistribution of lake water by machinery, and the seasonal stoppages of overland transportation for the freeze-up and breakup of northern rivers. With attention to terminological and conceptual differences between "commodification" and "industrialization," Piper's work breathes new life into the

analytic categories of nature, labor, and culture--categories that were brought to life in Richard White's scholarship in the early 1990s, but which recent historians suggested were environmental history's dead weight.[1]

To place Piper's work only in the context of environmental history would do this listserve a disservice, however. A student of Canadian history, Piper locates her subject within the economic and bureaucratic history of Canada in the twentieth century. Attention should be paid to this region, she notes, for the unique timing and trajectory of industrial development on the large lakes. During the interwar period, when most of the nation experienced a Great Depression and sluggish economic recovery, the Northwest boomed, with mineral and fish extraction dominating the lands on the western edge of the Precambrian shield. Running against the grain of scholarship that emphasizes unparalleled administrative intervention in the North following WWII, Piper argues that the years between the 1920s and 1940s witnessed a dramatic reordering of northern society, nature, and industry. New arrangements among scientific researchers, industry representatives, and territorial administrators encouraged industrial operations to replace local land uses; flourish on the lakes; and finally become a naturalized feature of the northwestern landscape, such that mid-century visitors perceived the North as pristine.

Before treating this book's employment of histories of science, I must make a note regarding Piper's source base. Her archival work is extensive and intensive, including visits to nearly fifteen different major libraries and three times as many private collections. It is this wealth of material that provides the foundation for Piper's insightful textual revelation of the changing "industrial circuitry"--the transnational transportation, commercial, and knowledge networks connecting places like Deline, Edmonton, and Hiroshima--in three of the monograph's nine chapters. In addition to *what* information she brings to bear on

her subject, *how* she does it is particularly impressive. Helpful maps, tables, and other illustrations are deployed throughout, and complement her colorful narrative (see pp. 230-231 for an example). Especially in the chapters devoted to disciplinary conceptions of lakes, mines, and fish populations (chapters 4, 5, and 7), Piper combines published reports with oral histories of individual scientists, providing an intimate and complex picture of these actors who typically appear like the grey papers they are known for: dry and impersonal. The effect of these profiles and the exhaustive research in general is an authorial authority to analyze the political ecology of mines and fishing work scapes from the smallest to largest scales.

While I have much praise for Piper's use of scientific literature, it is this facet of the book that raises the most (interesting) questions for me. Like many environmental historians, Piper consults recent scientific work to characterize historic changes in Canadian northwest ecology, geology, and demography. At the same time, she uses reports published between the 1920s and 1960s as windows into the personal and disciplinary worldviews of biologists, geologists, and limnologists. Piper is keenly aware of the potential problems in such an approach and she makes clear in the introduction her rationale for working with these documents. Recognizing that scientific publications are always cultural and historical products, she attempts to carve out credibility in contemporary science with the knife of consensus: she privileges the most well-cited recent works as more trustworthy than the most up-to-date research available.

This approach provides one model of writing histories of Canadian science and environments--but what are the model's strengths and weaknesses? On the one hand, Piper hits her target of assessing environmental change in the large lake region and convincingly illustrates that this change took place within a scientific framework assem-

bled by administrators, scientists, and industry representatives. On the other, Piper's mobilization of scientific records seems to have homogenized scientists and their detractors into simple categories. Her emphasis of science's "handmaiden" status with industry and government and her conclusion that native northerners were resistant to scientific initiatives left me curious about whether or not she applied her criteria for selecting recent scientific literature to the historical record as well. Because she does not explicitly consider academic outliers in her handling of geologists, limnologists, and biologists, Piper groups these scientists together as bedmates with commercial and governmental enterprises. Similarly, because most of the protestors to this academic-industrial-administrative complex are local natives, the role of aboriginals across geographic location, historical period, and tribal affiliation is contained to marginalized resistance. Such monolithic portraits of science and native cultures have been challenged in other scholarly circles, suggesting that these representations provide a limited utility in integrated histories of Canadian science and environment.[2] Perhaps this critique can be chalked up as a trade-off inherent in historical scholarship--a trade-off Piper is likely mindful of, given her caution to readers that her work would sacrifice political, economic, and native history for the sake of environmental history.

In the end, the issues raised by Piper's book benefit a wide array of scholars--from Canadian historians, to historians of science, and historical geographers--because of her book's original and well-supported contributions to environmental history and the history of the Canadian North. In the spirit of this discussion network, I end this review with a few questions that originate from my reading of Piper's work, but hopefully will not end there. May these questions help launch the lively conversation about *The Industrial Transformation of Subarctic Canada* that the book deserves. First, Piper's cartography of the large lake region includes the spatial dimensions of profes-

sional science, global fisheries and mineral markets, and transnational economic policies. How do historians and geographers define regions in Canada? How and where do local, provincial, national, and international scales fit into the place of the region? Second, does Piper's analysis of the economic geography of the Northwest--a geography characterized by an absence of rail infrastructure and agriculture, and a presence of lake-based, high-value, low-volume development--provide a framework for a history of "the North" that differs from economic geographies of "the West?" Finally, how do environmental historians use historical scientific studies as primary and secondary sources? How do scholars attend to biases within scientific reports while employing them to describe people and places of the past?

Notes

[1]. See Graeme Wynn, review of *Nature of Gold: An Environmental History of the Klondike Gold Rush*, by Richard White, *Agricultural History* 79, no. 2 (spring 2005): 243-246.

[2]. Historians of science and environment in colonial settings have argued that "colonizer" and "colonized" are too simple of categories to capture the pluripotency that results from encounters among natives and newcomers. See Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815* (Cambridge: Cambridge University Press, 1991); Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (New York: Routledge, 1992); and Nancy Rose Hunt, *A Colonial Lexicon of Birth Ritual, Medicalization, and Mobility in the Congo* (Durham: Duke University Press, 1999). Historians of science have shown how the professionalization of science involved certain boundary work within and across disciplines to distinguish between amateurs and experts, which indicates heterogeneity within the heading of "scientist." See Daniel Kevles, *The Physicists: The History of a Scientific Community in Modern America* (New York: Knopf, 1977); Kenneth Manning, *Black*

Apollo of Science: The Life of Ernest Everett Just (New York: Oxford University Press, 1983); Margaret Rossiter, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore: Johns Hopkins University Press, 1995); and Mark Barrow, *A Passion for Birds: American Ornithology after Audubon* (Princeton: Princeton University Press, 1998).

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