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Entangled histories: Iron ore mining in Canada and the United States

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ABSTRACT

This paper examines the entangled histories of post-WWII iron ore mining in the Quebec–Labrador region of Canada and the Lake Superior basin of the United States. After a brief look at the scale of iron mining in Labrador, we examine the so-called “Iron Ore Dilemma” in the United States—the fears that dwindling supplies of high-grade iron ore in the Lake Superior District threatened Cold War strategic interests. Using the case study of Reserve Mining Company along Minnesota’s north shore, we examine how cold war concerns about the depletion of direct shipping ore led American mining interests to promote the technologies and tax incentives needed to exploit taconite ore bodies—a lower-grade iron ore that required new technologies and created new environmental consequences. We then turn to the Canadian subarctic where American iron and steel interests worked with Canadian partners and the state to establish mines that might replace depleted ores in the Lake Superior Basin. Tracing the webs of connections between Quebec–Labrador and the Lake Superior Basin illuminates the ways that transboundary processes draw distant mining regions together. It also illustrates how the effects of mining extend beyond the mine site, crossing scales of time and space.

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1. Introduction

In the eastern Canadian subarctic, massive iron mines lie along the Quebec–Labrador border, tapping the rich iron resources of the 1600 km-long Labrador Trough, a structure of sedimentary and volcanic rocks deposited two billion years ago under a shallow sea.¹ Total annual production of refined ore from the Quebec–Labrador region is roughly 40 million tonnes—essentially all of Canada’s production. In a global context, this places Canada ninth in global iron ore production, just below the United State’s 52 million tonnes, and well below China’s 1.32 billion tonnes (USGS, 2014).

This is a lot of iron ore. But all this ore has been extracted from industrial installations (including pits, supply roads, and tailings piles) that occupy a relatively small area. The two largest iron mining operations in Canada, the Iron Ore Company of Canada (IOC) in Labrador (11,000 ha) and Arcelor-Mittal in Quebec (6216 ha), only account for about 0.00002% of the Canadian land base. At first glance, so much ore from so small an area underscores the mining industry’s image of itself as an industry that has

primarily local effects, disrupting “small areas of land for short periods of time,” (Wynn, 2007, 332). Even if we added every metal mine developed in Canada over the last 150 years, the area would total only 0.03% of Canada’s land mass, an area not even half the size of the country’s smallest province (Wynn, 2007).

Mines are often located far from urban centers, creating a sense of remoteness (at least in the eyes of decision-makers), which reinforces a sense that the environmental effects of mines are fairly limited. Mining interests promote this view of their activities—the effects of digging a massive hole in the ground and extracting ore might seem severe, but in the global context, those effects are quite local. But this is a conceit. Mines may seem remote and their ecological effects limited, but this paper argues that such perceptions are illusions that obscure important connections. Rather than being remote and self-contained, flows of power, capital, and technology have connected iron mines in the Lake Superior District and the Labrador Trough of North America.

This paper will trace the webs of connections between Quebec–Labrador and the Lake Superior basin, starting with iron mining in Lake Superior region, where concerns about depletion of high-grade iron ore stimulated two key changes: a shift to mining of lower-grade taconite ore, and a strategic move to promote iron ore mining in Quebec–Labrador. Both of these regions are extractive peripheries, and they manifest similar complex connections to far flung, but geographically specific, networks and processes of extraction and dispossession, environmental transformation, and

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¹ Labrador is part of the Canadian province of Newfoundland and Labrador. For brevity, unless otherwise noted, we will simply refer to Labrador rather than Newfoundland and Labrador.

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accumulation (Hayter et al., 2003) As sites located at the northern edge of each country, both regions illustrate the ways that the north has been shaped by rich entanglements between environmental history, politics, and technology (Jorgensen and Sorlin, 2013). Comparing the two regions illustrates the ways that transboundary processes draw distant mining regions together, while also illuminating how the effects of mining extend well beyond the mine site, crossing scales of time and space.

2. The iron ore dilemma in the US

American economic expansion after the Second World War required steel, and steel manufacturing required reliable sources of iron ore. But what if domestic supplies of high-grade iron ore were rapidly depleting? In a December 1945 article on the “iron ore dilemma” in the United States, *Fortune Magazine* posed just this question. It began by asking readers to imagine a diagram in which the American economy appeared as an “immense inverted pyramid, its needle base resting on a single strip of gently rolling land, 110 miles long by one to four miles wide, in North Minnesota.” Out of this small “strip” of land, “the steel age economy” of America had “sucked like milk from the earth mother’s breast, by far the largest portion of the principle food out of which its bones and muscles have been built: its machines and tools, its buildings and bridges, its railroads and automobiles, its generating plants.” As the key ingredient in manufactured iron and steel, the iron ore from this remote region made possible automobiles, railroads, skyscrapers, barbed wire, tanks, bombs and bullets (Manners, 1971). Even more important in light of recent global conflicts, the region had supplied the nation’s weapons and war machines: “Blasted and gouged from the strip’s awesome open pits,” were fully “two-

thirds of the iron ore for the 400-odd million tonnes of steel out of which the United States had fashioned the war plants, ships, planes, tanks, guns, bombs, and shells of World War II,” (“The Iron Ore Dilemma” 1945, 129).

The iron ranges of Minnesota, Wisconsin, and Michigan—collectively known as the Lake Superior District—had “nourished the US economy for half a century, through two World Wars” (“The Iron Ore Dilemma,” 1945, 129). Yet the region was slow to develop, because Lake Superior’s distance from North American centers of industrialization posed a critical problem before the Civil War. However rich the ore bodies, rapids and other natural obstacles made the cost of transporting ore from mines to markets prohibitive. Federal involvement in the creation of a shipping and railroad infrastructure within the Great Lakes, starting with the 1855 construction of Sault Ste. Marie locks, was key to overcoming the problem of remoteness and distance, thus enabling development of the Lake Superior District (Bowlus, 2010; Reynolds and Dawson, 2011). By 1890 more than half of all the iron ore used by the American iron and steel industry came from the Lake Superior District (Fig. 1). At the end of the second world war, the region supplied 85% of the United States’ supply of iron ore (Harrison, 1953).

Iron ore in the Lake Superior basin fell into two broad types: high-grade ores (often called “direct shipping ores” because such ores required minimal processing before shipping), and low-grade ores which required expensive beneficiation: an expensive and technically challenging process involving crushing, screening, grinding, magnetic separation, filtering and finally drying (Manuel, 2013, LeCain, 2009). Before the 1950s, iron mining in the Lake Superior Basin focused on higher-grade hematite (50–70% iron) that did not have to be beneficiated. Increased steel output during

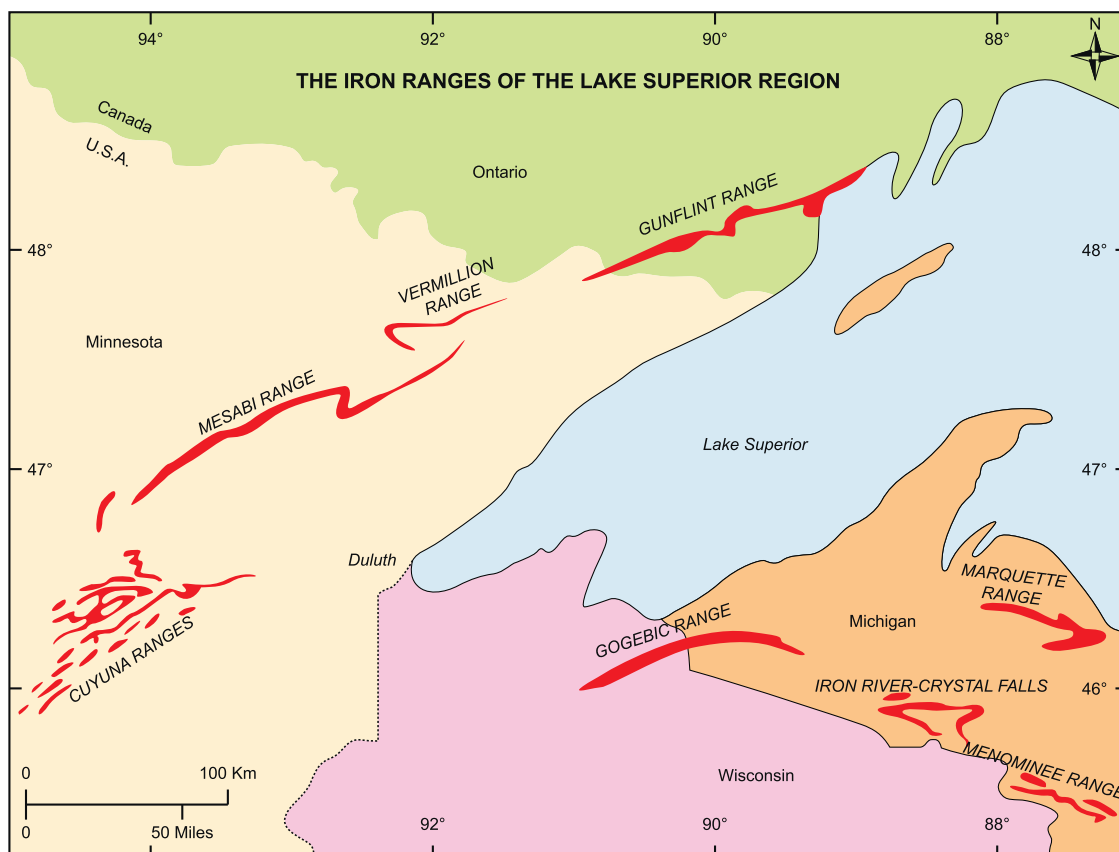


Fig. 1. Iron ore ranges of the Lake Superior region. Source: map by Elsevier Illustration Services, based on W. F. Cannon, US Department of the Interior USGS Report, Public Domain, via Wikimedia Commons.

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