Under an Open Sky

Rethinking America's Western Past

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For
Howard

Kennecott Journey

The Paths out of Town

WILLIAM CRONON

Kennecott: It is one of the most unlikely ghost towns in the United States. The way there is long and hard, and you are not apt to stumble upon it by accident. About eighty miles north of Valdez in south-central Alaska, you turn east off the main Richardson Highway and drive thirty miles on deteriorating asphalt to the tiny hamlet of Chitina, with its bar, post office, and thirty-odd inhabitants. There, the pavement gives out altogether and you had better buy gasoline, for you will not get the chance to do so again. As you continue east across the Copper River, the roadbed suddenly narrows, changes to gravel, and shows increasing evidence of being exactly what it is: an abandoned railroad bed. The ties have been removed to make the going easier for cars, but each winter the frost still heaves up a few of the old spikes that once held rails and ties together. Locals will suggest that you check your spare tire before proceeding, lest one of these historical artifacts put a premature end to your journey.

You are on the McCarthy Road, which will carry you some 63 miles into the heart of the Wrangell Mountains. You will see few people or buildings along the way, but everywhere there are quiet indi-

cations that this corridor was once much busier than it is today. Despite its state of abandonment, the roadbed has obviously had great labor and capital expended upon it; although the countryside dips and rolls around you, the grade of the road is virtually a dead level, reflecting the engineering skill of its builders. At times decaying wooden trestles tower 50 or more feet above you, and you wonder who went to so much trouble to erect such structures in so remote a land. Your most exciting moment (some would say terrifying) is likely to come when the road crosses 283 feet above the gray-green waters of the Kuskulana River, on an eighty-year-old steel bridge that spans the narrow canyon with only the most casual of guardrails. That such a construction has survived the earthquakes and winter storms of three-quarters of a century is testimony to the care that went into building it. You can try to reassure yourself with this thought as you inch your car across it.

The McCarthy Road finally comes to an abrupt end at the foot of the Kennicott Glacier, where the dirty torrent emerging from beneath the ice has washed away all traces of the route. Your journey is still not over. Here you must leave your car behind and pull yourself across the river in a tiny hand-powered cable car suspended fifteen or twenty feet above the churning water. Once you've relocated the old railbed, it is a few hundred yards' walk to the village of McCarthy, where perhaps a dozen people still make their homes. You may want to pause before continuing, for the town is a rather haunting shadow of its former self. The streets have become little more than foot trails if you can find them at all beneath the dense foliage. Most of the buildings have not seen a coat of paint in half a century. More than a few are being actively reclaimed by the vegetation around them, as sagging roofs and collapsing walls return to the soil.

If you know the West, you have seen such abandonment before; it is all too familiar a place. As such, it conjures up the sorts of questions one often asks in the presence of romantic ruins. The people who built these empty structures, where did they come from? What sorts of lives did they lead, and why did they leave their homes in this sorry state? Why were they here, what did they do, where did they go? The solutions to such riddles lie like tracings in the landscape around you, for the past of these people is written in the marks they made upon this land.

To understand what happened to McCarthy, you must complete the final leg of your journey. The old railroad bed does not end here. It leads you yet another six miles north, skirting the edge of the vast

dirty glacier, to your ultimate destination: Kennecott. Here, so the story goes, Jack Smith and Clarence Warner wandered up the valley in August 1900 and spied on a high hillside an outcropping of malachite so green that they mistook it for grass to feed their horses.[1] In fact, it proved to be ore so pure that it assayed in at better than 70 percent copper, the richest vein the world has ever seen.[2]

If McCarthy impresses one mainly with its state of collapse, Kennecott gives an opposite impression. The buildings and equipment that formed the heart of this company town have survived remarkably intact. At the center of everything is the enormous crushing mill and leaching plant, a sprawling structure that hugs the hillside as it drops in a series of steps 180 feet down toward the valley floor. Ore entered the mill via a tramway descending from the peaks above and then dropped through ever finer crushers and sifters until it spilled out the bottom into ammonia vats, where it was readied for shipment.[3] The building's dozen or more stories reflect the multistaged refining process within, piled on top of each other in an oddly Gothic jumble like something out of a Charles Addams cartoon. The red walls and white window trims have faded, but one gets little feeling of decay or collapse. It is a ghost factory in a ghost town, yet its haunting could almost have begun yesterday. In the bunkhouse where the millmen slept and ate, linen is still on the beds, and plates are still on the cafeteria tables. Open account books lie scattered about the storerooms and offices, protected from decay only by the coldness of the northern climate. Even the machinery is remarkably well preserved: Lift the cover of the sifting mechanisms, and beautifully clear oil still bathes the gears with lubricant.

Kennecott was once one of the greatest copper milling centers in the world, yet its rise and fall spanned less than three decades. It began as the brainchild of Stephen Birch, a young mining engineer just out of Columbia University, though the money for its development soon came from people with names like Guggenheim and Morgan. Their Alaska Syndicate, initially capitalized at ten million dollars, finally grew to an investment more than ten times that amount.[4] Out of that money (and the labor it bought) came Kennecott's mines, crushing mill, company town, and railroad. The mines themselves, which were located 4,000 feet above the mill, eventually included 40 miles of underground tunnels, in rock so cold that the temperature at which men worked never rose more than a degree or two above freezing. An extensive network of aerial trams delivered ore to the mill, and the railroad then carried the concentrated product 196 miles to

Cordova on the south coast, where a fleet of company-owned steamships carried it on to Tacoma, Washington. The first shipment arrived in that city on April 14, 1911, and was valued at a quarter of a million dollars.[5] Over the next twenty-seven years Kennecott produced ore worth somewhere between two and three hundred million dollars, earning its owners approximately one hundred million dollars in profits.[6]

And then it ended. Like so many other western colonies, Kennecott's days of promise and abundance were numbered. The depressed markets of the 1930s knocked the bottom out of world copper prices at the same time that Kennecott's fabulously wealthy veins finally began to give out. By 1938 Kennecott Copper Company (founded after the Alaska Syndicate had reorganized in 1915) had closed its Alaskan mines and shifted operations to Utah, Chile, and other more promising sites. Almost overnight, the machinery at Kennecott fell silent. Within a few months the population of the area had dwindled to a mere handful of people, so that not much remained but the buildings, the piles of blue-green tailings, and the deserted railroad. The Kennecott boom was over, though the corporation it had spawned would outlive its namesake to become the largest copper producer in the world. On

The abandoned mill at Kennecott. *Courtesy of William Cronon.*

November 11, 1938, the last locomotive completed its run from Kennecott to the coast, leaving behind it an abandoned pair of rails leading to an abandoned pair of towns in a remote but extraordinarily beautiful Alaskan valley.[7]

What is one to make of this place and of the memories that lie so visibly on its landscape?

The thing that initially most strikes one about Kennecott is just how *western* it is. Despite its far northern location, nearly everything about it evokes the West. Its remote rocky valley, ringed by snow-capped peaks, could lie only on the sunset side of the Mississippi River. Although it inverts the dryness that characterizes large parts of the arid West, it shares with the rest of the region a more fundamental trait: a climate of extremes. It has too much cold, too much rain and snow, too much and too little sun to be mistaken for anywhere else on the continent. People living under these conditions must adopt very different survival strategies from those in the gentler East. Because the climate is so severe, relatively few people can live here. Even at the height of its mining operations, the population density of the valley was minuscule, with virtually all its inhabitants clustering in two towns and four mines. This distribution of people mimicked in miniature the West as a whole, where large cities remain separated by vast stretches of relatively empty land. In much the same way Kennecott's resource-extractive economy mimicked that of many other parts of the region. Finally, these ruins evoke one of the most familiar patterns of western settlement, the boom-and-bust economy that can create and destroy communities almost overnight. If one wanted a case study for thinking about environmental change in the West as a whole, one could do a lot worse than to make the long journey to Kennecott.

What happened at this place, and the way it became connected to the rest of the world, provide a classic study in the environmental history of western North America. In exploring Kennecott's changing environment, we ask questions that have a significance beyond this place, for they point to new ways of thinking about the West as a region, new ways of approaching environmental history in other times and other places.[8] In posing them, we seek to integrate three broad elements: the ecology of people as organisms sharing the universe with many other organisms, the political economy of people as social beings reshaping nature and one another to produce their collective life, and the cultural values of people as storytelling creatures struggling to find the meaning of their place in the world. Our goal in peering through

these three lenses is to see how environmental change relates to other changes in human societies. The special task of environmental historians is to tell stories that carry us back and forth across the boundary between people and nature to reveal just how culturally constructed that boundary is—and how dependent upon natural systems it remains. As we seek to understand Kennecott, the questions we ask must show us the paths out of town—the connections between this lonely place and the rest of the world—for only by walking those paths can we reconnect this ghost community to the circumstances that created it.

One starting point, obviously, is the environment itself. It makes good sense to follow the geographer's lead and ask questions that map the natural features of the place called Kennecott. One looks at its climate to determine its temperatures (cold), its total precipitation (high), its annual growing season (short). One learns about its bedrock, its minerals, its soils. One identifies the plant species that make up its vegetation and the animal species that constitute its food chain. One gathers data about the microorganisms that infect the people and other creatures that live here. One maps out the flow of its rivers, the depth of its water table, the slopes of its topography, and all the other physical characteristics that might somehow be relevant to human life. The end product is a kind of atlas showing what is distinctive about the environment of this particular place.[9]

The chief danger in this approach is that it all too easily produces an endless accumulation of details with no order, no hierarchy, no analytical value beyond mere description. All too many regional histories and geographies, in the West and elsewhere, begin with a dry, dead chapter on "environment" that recites innumerable minutiae about climate, soil, and vegetation without the slightest indication of why they matter to history. Often they *don't* matter: the author forgets most of them as soon as the chapter is over, never bothering to explore their relevance to the rest of the narrative. The bankruptcy of such an approach should be self-evident. The chief innovation of environmental history has been to assert that discussions of natural context cannot be relegated to an isolated chapter but must be integral to the human history of which they are so fundamental a part.

Cataloging the environment, then, is only the beginning of our work. The deeper task is to connect it to the people who live within it. To do so, we might simply ask what those people eat. The food we put in our mouths, digest in our intestines, and excrete back into the environment is one of our most intimate ties to the natural world. Much of our social life is devoted to acquiring and consuming it. Our

survival depends on it. Every article of food reaches our stomachs via a different route, and is thus a kind of pathway—out of town and back into nature—for an environmental historian to trace. Ecologists speak much of the energy flows and nutrient cycles that define an ecosystem, and these apply no less powerfully to human societies. Energy and nutrition are what food is all about. But because people inhabit cultures as well as ecosystems, the choice of what to eat has as much to do with filling the soul as with filling the gut. Two different communities inhabiting the same ecosystem can make radically different choices about which parts of it will enter their stomachs. In so doing, they say much about who they are and what they believe.

Take, for instance, the native people who inhabited the Copper River watershed before Kennecott ever existed. Called the Ahtnas—after the Russian name for the river itself—they relied entirely on local plants and animals for their survival.[10] Salmon, caribou, and ground squirrels were among their most important foodstuffs. But to describe such creatures only as "food" would be to miss their most vital qualities, for they were also fellow beings who shared a complex moral universe with the people who hunted them. Long ago, in myth time, there had been no boundary between people and animals, so that beings could shift form from human to raven to fish and back again as suited their purposes.[11] "Once all was man," the Ahtna storytellers said, and their tales of those former times reminded children of the essential qualities that people and animals shared with one another.[12]

Even now the animals still had great power. They understood human speech and were always watching from just beyond the edges of the camp to see whether people were acting as they should. To understand the Ahtnas' environment—and the environment of most native peoples in North America—one has to see it as they did, as a moral space inhabited by spiritual beings. The forest was everywhere alive with eyes, all of them watching.[13] "Good luck" and "bad luck" were no mere superstitions in such a place; rather, they defined success or failure in the hunt, which in turn marked the boundary between survival and death. One could kill and eat animals, but only after properly thanking them for acquiescing in their own deaths. Some were so powerful that to harm them at all brought great peril. Wolves, for instance, were among the greatest of animal hunters, and it was dangerous even to touch their tracks in the snow. If anyone was foolish enough to kill a wolf, the resulting bad luck was so strong that one would never kill anything else again. Unless one atoned for the death

with a great gift to the animal, one would die a slow death oneself—by starvation.[14]

Death by hunger is, of course, not merely a spiritual event but a profoundly material one. The Ahtnas had good reason to worry about it. For them, the threat of starvation was an annual affair. This suggests further questions we need to ask even about more forgiving environments. Any geographical description, no matter how static, can be set in motion by asking, "How does this place *cycle?*"[15] As the planet rotates on its axis, how does the life of the day differ from that of the night? As the earth revolves around the sun, how does the flux of solar energy shift from month to month? During what period is life most exuberantly abundant, and for how long does the local world slumber in the winter cold? Most critically, at what time of year is sheer survival most at risk, and how do people respond to the dangers they face?

The Ahtnas dealt with the extreme seasonal cycling of their ecosystem in several ways. For one thing, they kept their total population very low, no more than a few hundred people in the entire Copper River valley south of Chitina. In the seventy-mile stretch of country between Chitina and Kennecott, perhaps thirty individuals made their homes.[16] Even this small group could not always live together, for during the worst winter months the food supply was too sparse to feed so many people. The Ahtnas solved this difficulty by regularly shifting locations and changing the size of their settlements. Like most people and animals, they also stored surplus food to use when nature's larder would be nearly empty. In spring they lived in relatively large, permanent villages along the banks of rivers where they could fish the salmon runs, drying and storing their catch for later use. Toward midsummer they headed upslope to smaller meat camps where they could trap and hunt everything from caribou to squirrels. Fall found them back at their larger village sites to eat the stored salmon they had cached earlier in the year.

But the annual flow of solar energy is weak in Alaska, and even animals have difficulty storing enough summer fat in their bodies to make it through the long dark winter. Human beings faced the same problem, and their success or failure depended on that of the animals. By January or February Ahtna food caches usually began to give out and families were forced to disperse once again in search of whatever food remained. Late winter was always the hardest of times. If luck was good—if people were scrupulous in attending to their rituals and

if the animals were generous in their gifts—a small band could capture enough ground squirrels and the occasional emaciated moose to make it through the winter without great suffering. If not, starvation was a constant possibility. In 1828 the winter failure of the caribou herds brought death to more than one hundred natives in the Copper River valley.[17] When Lieutenant Henry Allen made the first American exploration through this country, during the late winter of 1885, he found hungry native families scrounging for food wherever he went. Allen's own group, dizzy with hunger and barely able to crawl, was eventually reduced to eating rotten moose meat, which they consumed as eagerly as the starving natives. As one member of the expedition reported, "it tasted good, maggots and all."[18]

Not just food is affected by the seasonal cycling of the ecosystem. Virtually everything a human community does—its shelter, its clothing, its work, its rituals—reflects the wheel of the seasons. An environmental historian needs to track each of these elements and reconstruct their connections to the natural world. Take travel, for instance. Alaska's peculiar climate and soils make it extremely difficult to move through the interior during spring and fall, when mud, floods, and unreliable ice encourage everyone to stay at home. (In this it has much in common with other parts of the West; migrants on the famed Oregon and California trails faced many of the same seasonal problems.) Alaskan travel is easiest when rivers are open and not so flooded that boat travel becomes too dangerous, or in deep winter, when the rivers are frozen and can serve as highways for sled travel. This meant that groups like the Ahtnas could make extended journeys only at well-defined times of the year. When Lieutenant Allen set out from the mouth of the Copper River, traders there were expecting upstream natives to appear any day with their winter fur catch, taking advantage of the last reliable ice before the river broke up and travel became impossible.[19]

Allen himself faced the same challenge. He and his men began their journey with nearly half a ton of supplies but quickly learned that there was no way to move so heavy a burden on sleds across the unreliable snow and ice of the March landscape. Within three days of starting, they had jettisoned nearly half their load. All that remained in the way of food were 150 pounds of flour, 100 pounds of beans, 40 pounds of rice, two sides of bacon, 15 pounds of tea, and small quantities of beef extract, deviled ham, and chocolate.[20] The list of provisions is ecologically suggestive, for there is nothing Alaskan about it. Allen's food quickly gave out, so that he and his men soon found

themselves, as Alaskans said, "living upon the country," but his original intention had been to survive on the stored food he had imported from Outside.[21] This in turn opens up a profoundly important set of questions for environmental history and the history of the West.

Living upon the country or importing from Outside: These are the two most basic human choices about how to live in a particular place. From the many objects and organisms around them, people identify a certain subset as "resources," things to be drawn into the human community and turned to useful ends. Some become food, some are burned for warmth, some are fabricated into clothing and tools, some serve as markers of wealth and status, some express beauty, some become holy, and most become a mixture of these things. Asking how people partition an ecosystem into a resource base shows us the boundaries they draw between useful and useless things. Just so do they define a unique human place in nature, a unique way of being in the world.

Some of these resources are of interest to more than just local people. Among the many human actions that produce environmental change, few are more important than trade. When people exchange things in their immediate vicinity for things that can only be obtained elsewhere, they impose a new set of meanings on the local landscape and connect it to a wider world. In so doing, they invent what one might call new paths out of town. These increase the chance that the local environment will begin to change in response to outside forces, so that trade becomes a powerful new source of ecological change.

When transport systems and markets are limited, the resources that enter into them and travel farthest tend to be light, low in bulk, and highly valuable. It is no accident that early trade networks in many parts of the globe concentrated on spices, rare foods, precious metals, and furs. This was true throughout the West—one finds salt, coffee, alcohol, gold, and skins being traded everywhere—and it was true in the subarctic North.[22] Natives from interior Alaska exchanged furs and fish with natives in coastal areas long before Europeans ever visited the region, thereby linking the resources of two broad ecological zones.[23] Such exchanges were not necessarily peaceful. Coastal Chugach Eskimos from time to time made raiding expeditions nearly to the source of the Copper River to pillage Ahtna settlements, rob food caches, and kidnap women.[24] Viewed ecologically, raids and conflicts of this sort often express many of the same values that underpin trade.

Although these "exchanges" might link communities hundreds of

miles apart, native trade and its ecological consequences were limited because goods could move only in packs, sleds, or boats. When the Russians arrived in their sailing craft and sought to purchase furs, they pulled Alaska into a much larger Eurasian market.[25] This meant that a certain share of Alaska's resources—particularly its fur-bearing mammals—began to be extracted from the region and shipped halfway around the planet to meet the demands of people with dramatically different cultural needs. Russian and native traders started operating along the coast and throughout interior Alaska. In response, the Ahtna made regular excursions to the mouth of the Copper River, traveling in boats made of caribou skins, which they dismantled, tanned, and sold after arriving at the trading post.[26]

The ecological implications of such encounters were by no means simple. The Russian demand for furs no doubt encouraged natives to kill animals for different purposes than before, putting new population pressures on species that were now being exported from the local ecosystem. A new market-oriented logic began to exist side by side with the older gift-giving rituals that previously characterized native relations with animals. But such changes were rarely absolute. Natives managed to respond to market demands without abandoning their older spiritual relationships with the world around them.[27] As long as the fur trade depended for its work force solely on the small local population, hunting pressure on animals remained limited in scale.

This was less true on the coast. There marine mammals had special vulnerabilities that meant they could be exploited in much more intensive ways. Unlike other ocean dwellers, marine mammals had to breathe, opening themselves to human attack each time they surfaced for air. More important, several species—especially seals and sea otters—spent key periods of their reproductive cycles in coastal rookeries, where cows and calves could escape the attacks of predators. There they were easily slaughtered in the thousands by any human hunters who had clubs and the will to use them. To create that will, the Russians conquered native populations on the coast, especially the Aleuts, and reorganized them into a mobile labor force capable of exploiting seals and sea otters at levels far beyond their natural reproductive rates. By quite early in the nineteenth century market hunting was devastating marine mammals.[28]

Trade linked the resources of one ecosystem with the human demands of another. Alaskan villages that had no sugar, alcohol, or tobacco obtained such things by trading with communities that had no furs. The net result was to redefine the resources of the Alaskan

landscape, pushing them beyond the needs of local subsistence into the realm of the market, where any good could be transformed into any other. At the same time the act of economic consumption came to be increasingly separated from the place of ecological production, distancing people from the consequences of their own acts and desires. A kind of alienation from nature was the almost inevitable result.

In many parts of the world, one element in this process was simple population density. Trade redefined ecosystems by moving resources from places with few people to places with many. Certainly this happened in most parts of the American West. Natives of the Copper River valley had lived in relative balance with their fellow organisms partly because their numbers were small, and stayed so because a larger population would very likely have starved by winter's end. Local game animals were not likely to suffer serious depletion as long as they helped limit human numbers. Providing fur coats to the citizens of Moscow or Peking or New York City, on the other hand, was an entirely different matter. Wild game populations could hardly help failing in the face of such demand.

But population density by itself is almost never an adequate explanation for environmental change, for it leads willy-nilly to the much more complicated riddle of *why* human beings number as they do. Any environmental history must inevitably touch upon this question, if only implicitly. The answer has partly to do with the natural abundance of the ecosystem but has even more to do with social organization and political economy. Farming folk tend to be more numerous than hunting and gathering folk the world over. When farmers produce more food than they themselves consume, they can support individuals and groups that do not raise their own food. The result is not just greater human numbers but more elaborate human hierarchies. Agriculture thus supports the rise of cities, supplying their dense nonfarming populations with imported food. Although we too easily tend to forget this fact, every urban culture also farms. Industrial revolutions presuppose agricultural ones, so that city and country grow together.

Kennecott and the American West are hardly the places to explore human social evolution writ large, but they did supply distant cities whose inhabitants rarely gave a second thought to their existence. The process of linking sparsely populated regions with densely populated ones has been central to the entire course of western history. It takes little effort to write the history of the frontier West as a story of peripheral areas becoming ever more integrated into an urban-indus-

trial economy. Because city dwellers were fed by an agricultural system that they themselves controlled and because they could look to so many different parts of the world to supply themselves, their needs were in no way limited by their local ecosystem. Indeed, no one place was essential to their survival, for they could always use their wealth and capital to look elsewhere if the resources of any one place began to run out. The same was true of frontier agriculture: If farmers exhausted the soil, they could move on to greener pastures and start again. The result was a dynamic, unstable system that constantly threatened to push beyond the limits of the ecosystems that supported it.

The story of Kennecott is a classic case in point. When Lieutenant Allen visited the area in 1885, the natives showed him copper knives, bullets, and jewelry, all of local manufacture. The Ahtna chief Nicolai explained that he and his people made these things from nuggets in a local river and that he knew of a vein of ore high above his settlement that he would be happy to show to his visitors after the snow melted. Ahtna villages had been trading copper goods south to the coast for generations.[29] Although the local Indians clearly regarded their copper as valuable and depended on it for trade, their uses for it were limited. Weapons, tools, and jewelry were all they made with it, so their demand for the metal was considerably smaller than the supply. What made copper valuable was the human labor and skill that fashioned it into useful objects. The raw metal itself had much less intrinsic value, so the Ahtnas could afford to be generous in sharing it. "I do not believe," wrote Allen, "that the natives guard as a secret treasure the copper or other mineral beds, but think they would willingly reveal to the white man their knowledge in the matter."[30]

Allen, of course, saw the veins of blue-green ore with different eyes. For him, they had greater intrinsic value, for a reason that would have meant nothing to Nicolai: copper's ability to conduct electricity. The culture Allen represented was discovering a new need for this ability, and so began to draw Nicolai's world into its orbit. Allen's party embarked on its journey just as an increasing number of American prospectors were scouring the area for gold, a mineral they valued so highly that it could attract immigrants far in excess of the local ecosystem's ability to feed them. Already the increased numbers of people, armed with rifles and other weapons, were putting new pressure on local game species. In 1884 an army officer had issued clothing to natives on the Copper River because "it was quite plain to the casual observer that the immigration of so many white people into the Cop-

per River Valley meant the driving out of the greater part of the large game. . . ."[31] The long-term consequence was the same in the Copper River valley as in so many other parts of the West: Game disappeared.[32]

Conflict seemed likely under such circumstances, and the army, remembering what had happened ten years before at Little Bighorn, was careful to make plans for winning any violent encounter that might occur. This was why Lieutenant Allen had been sent on his journey. The orders authorizing his expedition bluntly predicted that "the conflicting interests between the white people and the Indians of the Territory may in the near future result in serious disturbances between the two races. . . ."[33] Allen's assignment was to explore what might be called the military ecology of the region. If the army invaded, it would bring a massive human influx to the region. Such a force would face the same choice as any other human population—living upon the country or importing from Outside—so army officials asked Allen to report on the local food sources and outside supply lines that would feed the troops.[34] Although the Ahtna had heretofore been entirely peaceful in their dealings with Americans, the United States was planning for violence. It was an old frontier story. One way or another, an invasion was in the offing.

The ecological nature of Allen's reconnaissance is best suggested by the order that directed him to pay special attention to any grass species he encountered along the way. "You will examine," his superior told him, "especially as to the kind and extent of the native grasses, and ascertain if animals ordinarily used in military operations can be subsisted and made of service there."[35] Did the Copper River valley contain enough grass to feed soldiers' horses? On the basis of their experiences elsewhere in the West, Allen's superiors were asking shrewd ecological questions, which historians would do well to emulate. Every human community depends for survival on its relationships with other species. If people migrate to a new location, other species do too. These in turn have all sorts of unexpected effects on ecosystems in which they gain a foothold.

The introduction of alien plants, animals, and diseases is one of the fundamental stories of environmental history throughout the American West. Although the process was more limited in Alaska than elsewhere because of its harsh climates and soils, migration went on even in the Far North. The most famous instance in the nineteenth century was Sheldon Jackson's effort to encourage Eskimos living on the Bering Strait to start raising Siberian reindeer as a substitute for

Alaskan caribou. Good missionary that he was, Jackson saw the reindeer as a way of introducing natives not just to a replacement source of food, but to a new pastoral way of life that would be more conducive to the Christian religion he sought to promote, proving again the intimate linkage of environment, economy, and cultural belief systems.[36]

Most such introductions, however, occurred without the help of self-conscious missionaries like Jackson. When a Euroamerican community did finally develop at Kennecott, residents managed to supply part of their food needs with the alien species they brought with them. Inger Jensen Ricci, who spent her childhood in the town, remembered how her parents supplemented family meals with cabbages, onions, and turnips from a backyard garden. The Jensens kept chickens so as to have fresh eggs and raised rabbits for fresh meat.[37] These mimicked in a small way the much more extensive migration of agricultural species in the West as a whole. But the Jensens' garden was hardly a farm. It contributed only a small share of the family's food because Kennecott's climate and terrain were poorly suited to the meat and grain crops of a typical American diet. The only viable alternative was for residents to import food from Outside.

The problem was how to do so. Lieutenant Allen's hardships in traveling across the Alaskan terrain demonstrated that no large-scale military movements were likely to be successful there, and none in fact ever took place. Instead, it was Nicolai's copper that finally brought a Euroamerican invasion to the region, enabling Outsiders to build a railroad that overcame the seasonal mud and ice of Alaskan travel to supply an urban-industrial colony by the side of the Kennicott Glacier. Fifteen years after Allen had visited the area, prospectors finally staked a claim to the blue-green vein that the Ahtna chief had described. In so doing, they introduced a new legal definition of property to the valley. Before Kennecott's copper could be used, before it could tempt anyone to pour millions of dollars into its development, it had first to be *owned*. Nicolai and his people claimed important rights of occupancy to the lands around their villages and when necessary defended them against intruders. But their shifting settlement patterns, and their reliance on the hunt, left them little concerned about drawing sharp property boundaries upon the landscape. When Jack Smith and Clarence Warner filed their claim to the copper vein that eventually became the Bonanza Mine, they had in mind a completely different way of owning and occupying the terrain. And therein lay the origin of the community called Kennecott.

Another group of questions about environmental history, then, has to do with property. How do people imagine they own the land and creatures around them? How does their legal system express this sense of ownership, and what consequences does it have for the environment? The legal history of the western economy, particularly as regards property, remains a largely unexplored field, badly in need of more theoretically sophisticated studies that will place the law in its cultural and ecological context.[38] Law is the foundation on which property rests and is therefore the formal expression of a community's relationship to nature.[39]

Kennecott came into being through a wide variety of legal mechanisms. Land laws enabled prospectors to claim ownership rights over any resources they "found." Laws of bankruptcy and limited liability allowed the Kennecott Copper Company to come into being and protected its owners from the full consequences of their actions. Contract laws governed trade and established the rules whereby managers and laborers worked together. Tort laws defined responsibility for accidents or environmental damages. Together they created a series of relationships between land and community that broke radically with the gift-giving spirituality of the Ahtnas. The law defined political and economic power in the West and is crucial to any systematic understanding of environmental change in the region.

Because Stephen Birch's Alaska Syndicate was able to buy up the legal rights to subsurface copper in the mountains above Kennecott, the company's owners knew they could sell and profit from that copper if only they could bring it to market. Toward that end they invested millions of dollars in the mining technology that brought ore out of the ground, the processing technology that purified it, and the transport technology that delivered it to the smelters where it finally became a commodity that people would buy. Collectively these technologies—along with the mineral in the ground and the money paid to workers—became the company's capital, which would henceforth determine the fate of the town it had called into being.[40] The story is familiar to every mining community in every part of the American West.

Capital invested at Kennecott was driven by outside forces that had nothing to do with the local community or ecosystem of the Copper River valley. The syndicate's profits required it to earn the best rate of return on its investments. Those who capitalized the town knew from the beginning that its key resource would eventually be extracted so completely as to destroy the community's raison d'être.

They could do this because their own survival in no way depended on conserving Kennecott's resources for the long run. Quite the contrary. Unlike the hunter-gatherer communities that preceded them, the owners of Kennecott had little interest in maintaining a self-sustaining relation to their resource base. Once it was used up, they could simply throw the remnants away.

In the Copper River valley a human population that depended almost entirely on the local landscape was invaded by a population that depended virtually not at all on that landscape. The same process happened to varying degrees throughout the nonagricultural West. Because the railroad liberated Kennecott's miners from the seasonal food cycles of the local ecosystem, it permitted a much denser and more sedentary population to live there. Kennecott's inhabitants lived in Alaska by converting copper into cash. Market hunters might shoot wild game in the surrounding valleys, but the residents of Kennecott and McCarthy purchased their meat in local butcher shops without ever encountering the animals whose flesh they ate. Local gardens might yield onions, turnips, cabbages, and other northern produce, but such crops mainly supplemented a more southerly diet of rail-borne fish, grain, and meat from distant ports and farms.

Historians writing about the past of any particular western place would do well to remember that its history is tied to many other regions undergoing parallel changes at the same time. The canned salmon that Kennecott's workers consumed in their cafeteria presupposed the prior development of a commercial fishery along the Pacific coast and the creation of dozens of packing plants scattered up and down the Alaskan shoreline.[41] The bread they ate came to them via Seattle from the vast agricultural areas of Washington and Oregon, where family farms followed the time-honored frontier practice of selling wheat—much as the mine owners sold copper—to buy supplies from the metropolitan economy.[42] The coffee that the miners drank, and the sugar they used to sweeten it, reflected a broader international trade with tropical areas far to the south, each of which was undergoing its own peculiar encounter with the forces of capital and empire.[43] Interregional trade networks such as these had been part of frontier history right from the beginning. Each trade linkage was also a new interface between ecosystems in remote parts of the world, and each raises possible lines of investigation—new paths out of town—for environmental historians seeking to place the history of the American West in its larger context.[44]

But what of the smaller context? Kennecott was not simply the

end of a trade route; it was also a world in its own right, a place where people made homes for themselves. Questions on a different scale suggest themselves here. Once people have chosen to call a place home, how do they arrange their lives within it? How does the physical form of their community reflect their relationships to each other and to the natural world? The shifting settlements of the Ahtnas responded to natural cycles of abundance and scarcity but also reflected the Ahtnas' sense that certain social groups should try to stick together. When a large summer village broke down into smaller camps, it did so along clearly defined lines of kinship, gender, and authority. Access to resources, political power, participation in rituals: all followed a carefully codified set of rules that expressed themselves as spatial patterns.[45]

The same was true of Kennecott. Complex boundaries of class, gender, and ethnicity produced an intricate social geography between the mines on the ridgetops, the processing mill in the valley, and the private town of McCarthy at the foot of the glacier. Most ridgetop inhabitants were single men, wage employees of the company, who lived in bunkhouses where the ordinary domestic activities of eating, playing, and sleeping took place in an unusually public setting. Few of the men had families, and turnover was high. Miners came from widely different ethnic backgrounds and did not always speak the same language. Under such circumstances, "community" was a tenuous thing, defined partly by the corporation and partly in opposition to the corporation.

Mapping out the geography of gender, class, race, and ethnicity remains one of the most important but least studied aspects of environmental history. More questions to answer: Why do people live where they do? How do they declare their differences from one another in the locations and forms of their homes? How do their dealings with one another and with nature reflect their positions in society? What does it mean to be a single man in this place? A married woman? A middle-class child? A person of color? An immigrant who speaks no English? A tourist? How do the many categories into which people divide themselves define the ways they experience and affect the landscape? Who has power over whom in this place, and how does the land reflect that power?

In the Alaskan copper region a clear class hierarchy overlapped with gender to create the very different communities of Kennecott, McCarthy, and the mines. The mines were entirely male and working-class, save for the few foremen and managers—also male—who

directed the mining process. The male world of the mines was matched by the more female world of McCarthy, although even there men constituted the larger share of the population. McCarthy was a "private" town, independent of the copper company, and it existed mainly as a market for the men on the ridgetops. A few miners had wives in McCarthy and conducted their family lives at long distance on an irregular cycle of meetings; the children of such unions might see their fathers only rarely. The rest of the miners visited McCarthy as well, but their relationships to the women of the town had a more commercial flavor. Sex and affection were usually filtered through the markets of the saloon and brothel. McCarthy had a middle class of store owners and their wives, but its customers made it a working-class town in which single men and women were a disproportionate share of the population.

This was less true of Kennecott, which residents knew simply as "camp." Camp had little to offer the miners, who rarely even stopped there on the trip down to McCarthy. Camp did not feel like nearly so working-class a place as McCarthy or the mines. The millworkers were single men much like the miners on the ridgetops, but they were more highly paid and had a higher status. More important, camp was where the company's manager and superintendent lived. They, along with the doctor, teachers, nurses, and office workers, constituted the highest social class in the community. They had a separate dining hall for themselves and were provided with all the appurtenances of middle-class life: comfortable single-family houses with leather furniture, fine china, silver service, wall hangings, and other markers of elite status. Somewhat below them in rank were the various foremen who oversaw the operations of the mill, but they too got houses that set them apart from the wageworkers in the bunkhouses.

The consequences of this class hierarchy were manifold. In Kennecott, to be working-class was to be single and male. To be a woman or child, on the other hand, was to be middle-class—very different from the situation in McCarthy. Women and children lived in the one-family dwellings that Americans saw as the ideal environment for middle-class life; indeed, children were told to stay away from the working-class bunkhouses "for fear of exposure to the hardened life."[46] Then again, even the middle class had gradations; not all single-family dwellings were equal in status. The less desirable ones were a steep walk up the hillside next to the mill and did not have indoor plumbing. They had running water only until pipes froze in winter, whereupon a family had to carry its water in pails until spring. Only those

in the most elegant buildings—and the workers in the bunkhouses—had the luxury of indoor toilets. Everyone else used outhouses. As Inger Jensen Ricci remembered it, "camp had a very definite class distinction."[47]

Not surprisingly, camp's relation to the surrounding environment was very different from that of Nicolai's village. The whole point of this community, after all, was to carve a maze of tunnels beneath the slopes where men in heavy woolen clothing wearing carbide lamps worked in a constant icy fog to extract ore from the mountains' heart. Other than copper, little in the local ecosystem was essential to Kennecott's survival. Nature therefore became what it was for many other urban Americans: a place of outdoor recreation, in stark contrast with the mines' underground place of work. One symbol of this was the cantilevered tennis court perched on the hillside above camp, where those who had permission were allowed to play. (Unfortunately the mosquitoes became such a problem for the players that the court finally had to be covered over with netting.) Inger's father went hunting and maintained a trapline, but more as a hobby than anything else. He was an amateur taxidermist who enjoyed stuffing animals in his spare time—not something the Ahtnas would have thought to do with their animal neighbors. Some miners made a practice of drifting back and forth between underground wage work and "living upon the country" by hunting for part of the year, but most middle-class excursions from camp were more for play than anything else. Berry-picking time was a great favorite of the children, though the food it added to family tables was hardly a necessity of life. Come summer, families took their children on holiday to Long Lake, a modest middle-class tent resort about a dozen miles down the railroad from McCarthy. There, they could get out into "nature"—not the nature of the Ahtna hunters, but a nature of genteel leisure and romantic retreat, far from the noisy industrial world of Kennecott. It was as if a little bit of the Adirondacks had been transplanted to the Far North.

In the end, the abstract questions we ask about environmental history resolve themselves into small human actions at very particular times and places: Ahtna hunters setting aside caribou meat as an offering by the fire, miners digging copper in frozen tunnels, middle-class families fishing by a lake. It is the details that matter. Imagine Inger Jensen as a ten-year-old Kennecott child out for a sunny walk along the railroad tracks to gather mountain cranberries so her mother could make pie—perhaps using an old Scandinavian recipe—as dessert for the family's dinner table.[48] Then imagine an Ahtna girl doing much

the same thing just a few years before—gathering the same favorite berry because it ripens so late in the year and stores so well through the winter months that it will still be nutritious when the snow melts, still provide color for dyes, still be useful as a medicine against sore throats and colds.[49] Two children, both gathering food, both enjoying their useful play. Imagine the differences between them. Imagine their worlds.

Big questions, small answers.

The story of how Kennecott became a twentieth-century ghost town suggests much about the environmental history of the West. Like so many other historical sites in the region, what happened at Kennecott found its roots in the depths of the earth. Without the chalcocite and malachite that had concentrated copper in the fissures of Kennecott's dolomite, the human past of this place would have been entirely different. And yet the mere existence of these minerals did not in and of itself determine the events that took place here. Far from it.

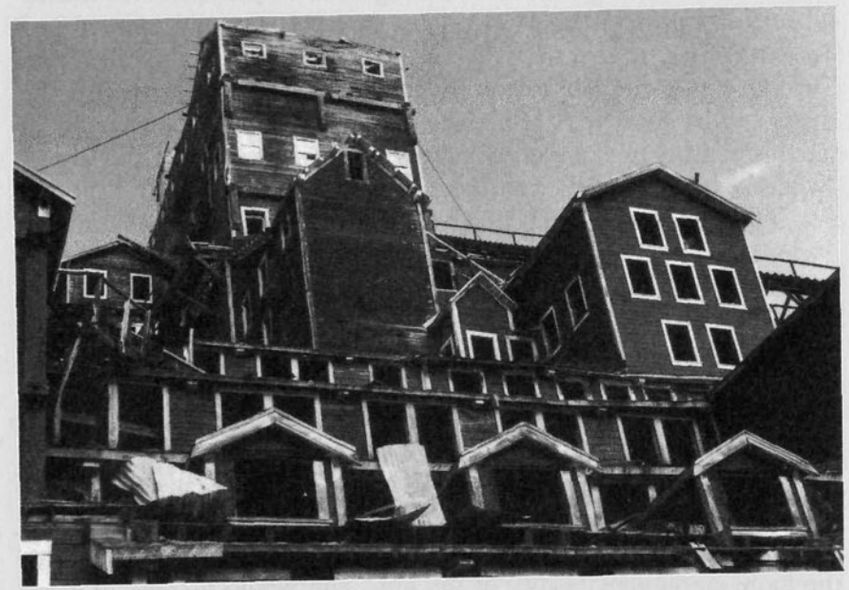
For large-scale exploitation of Kennecott's copper to occur, a human community organized on an entirely different basis had first to find it. Before chalcocite and malachite could become significant "determinants" of human history, electricity had to be discovered as a form of energy capable of being transmitted over copper wire. Economic demand for electricity required that it have some practical application, so that the invention of electric lights, motors, and telecommunication devices went hand in hand with electrical generating stations in fostering the market for an inexpensive base metal capable of wiring them together. Just as necessary was the concentration of human populations into cities where economies of scale for the first time made it possible to sell lights, telephones, electricity—and therefore copper—at a profit.

To realize such profits, there had to be still other conditions. The community had to have people interested in reading past the ordinary hours of daylight and workers whose factories no longer closed at sunset or depended on belts and shafts for their primary power transmission. Scientists had to understand enough about geography, geology, and chemistry to know where copper occurred and how to extract it. Transportation systems had to be able to move heavy, low-priced metals cheaply over great distances from western mines to urban markets. Food supplies had to come from an agricultural system capable of moving foodstuffs to mines that were otherwise incapable of feeding

themselves. And not least, the economy required the capitalist social relations and corporations capable of mobilizing immense amounts of wealth to assemble the workers and equipment without which copper could neither be mined, turned into wire, nor installed in houses, offices, and factories.

Kennecott's emergence as a great copper-mining complex in the first two decades of the twentieth century was thus neither a historical accident nor a case of geographical determinism. At no prior moment in the history of the West would it have been possible for capitalists in New York to hire engineers and workers in Alaska to construct a railroad, mine, and crushing mill deep in the interior of that remote territory so that the nation's cities could purchase a metal they hardly knew they needed just half a century before. A particular vein of a particular mineral created an opportunity, and a particular culture with particular social and technical needs then seized that opportunity for its own purposes. Kennecott thus emerges as a near-perfect example of the environmental processes that scholars of western history most need to study and understand.[50]

The mills at the end of the old railroad bed now stand silent, and the buildings are finally beginning to lean at crazy angles as the glacial



The face of Kennecott. *Courtesy of William Cronon.*

till gradually shifts beneath them. The people who erected this vast complex inserted themselves into the local ecosystem, built a community, transformed the local economy, and extracted the only resource that mattered to them on behalf of urban markets thousands of miles away. Kennecott exists because a myriad of historical forces joined together to reshape the hillsides above a dirty glacier in an obscure Alaskan valley. It was called into being at the behest of such forces, and it was turned into a ghost town in much the same way. Its copper was used up, demand declined, markets disappeared, and there was no longer any reason to maintain so remote and expensive a colony in so cold and northern a place. And so, overnight, like so many western ghost towns before it, it all shut down.

The story, of course, does not quite end there. There is still the long drive over the abandoned railroad bed on which you began your journey to this place, and the reason you yourself bothered to come at all. Curiously, these too are among the central questions of environmental history in the American West. Your very presence is proof that Kennecott remains a kind of colony attached in a new but not altogether unfamiliar way to the outside world. The old mill now lies within the bounds of Wrangell-St. Elias National Park, the largest such park in the entire United States. The property has been deeded over to the federal government (though the corporation still retains subsurface rights to the copper—just in case). The old railroad bed has lost its ties, so that tourists can travel the seventy-odd miles from Chitina, across the Kuskulana River Bridge, by cable car across the river, and by foot from McCarthy to the red mills of Kennecott, to see this symbol of abandoned industrialism within one of the largest "wilderness" areas of the continent.

That this wilderness is honeycombed with underground tunnels, pockmarked by blue-green piles of tailings, and still shows traces of aerial tramways leading from mines to mills, hardly matters to the backpackers and mountain climbers who visit it today. For them, escapees from an urban world who are willing to pay dearly to travel to the outer edges of civilization, this place has become a symbol of romantic decay in the midst of deep wilderness. Your journey here has more than a little in common with the trip Kennecott families once made to the tent resort on Long Lake in their efforts to get away from town and closer to nature. As you scramble about the ruins of the place, admiring the icy sublimity of the mountains and reflecting on the more ambiguous beauty of the mill, you would do well to place yourself as one of the figures in this ghost landscape. You too are part

of its environmental history, bringing with you—even as a reader—assumptions about nature and humanity that have led you to choose this particular place as the object of some desire. The paths out of town have brought you to Kennecott on the very road that once created it to send copper to the outside world. The end of the journey is also its beginning: in the wilderness that is culture's creature, the place where nature and history have met and turned, and turned again.

recession, and the advance of American settlement westward, explain American development." One needs to add caveats here about the ideological problems of viewing Indian territory as "free land," about settlement by no means always proceeding from east to west, and about the dangers of portraying "American settlement [and] development" monolithically, but even this much-attacked sentence contains more truth than falsehood.

4. The great historical document describing frontier settlement in medieval Iceland is the *Landnámabok*, the book of the land taking.

5. Frontier conflicts over landed resources were part of the fur trade economy as well, especially where fur-bearing mammals were hunted more quickly than they could reproduce themselves. In the face of such scarcity, conflicts among tribes for control of hunting territory and for access to market centers became endemic to the trade.

6. The Indian empires of Central and South America, on the other hand, bear a much stronger resemblance to their European successors.

7. Indeed, this was the moment when Turner's frontier "closed." The transition from territory to statehood was generally the moment when Turnerian historians saw the frontier coming to an end.

KENNECOTT JOURNEY
The Paths out of Town

1. The anecdote, which may well be apocryphal, is recounted in Merle E. Colby, *A Guide to Alaska: Last American Frontier* (New York: Macmillan Co., 1945), 245–46. For a review of the early prospecting history of the site and of the stories that have been told about it, see Robert A. Stearns, "Alaska'a Kennecott Copper & the Kennecott Copper Corporation," *Alaska Journal* 5 (Summer 1975), 130–39.

2. By way of comparison, copper mined in Chile today is often less than 1 percent pure. The sources for the history of the Kennecott mines are widely scattered in the technical and popular periodicals of the time. They are best summarized in Melody Webb Grauman, *Big Business in Alaska: The Kennecott Mines, 1898–1938*, Occasional Paper #1, Anthropology and Historic Preservation Cooperative Park Studies, University of Alaska, March 1977. See also the useful manuscript by William C. Douglass, "A History of the Kennecott Mines, Kennecott, Alaska" (1964; reprinted, Anchorage: Alaska Division of Parks, 1974), and the history of the Copper River and Northwestern Railroad by Lone E. Janson, *The Copper Spike* (Anchorage: Alaska Northwest Publishing Co., 1975). Note that Kennicott and Kennecott appear as variant spellings throughout this literature; although the site was named for Alaskan explorer Robert Kennicott, the mine and the company it spawned came to be misspelled as Kennecott. The glacier, on the other hand, is Kennicott.

3. The National Park Service in 1985 produced a superb survey of the different structures on the site, including the industrial processes that went on within them; see David C. Anderson and Nanon Adair Anderson, Kennecott Copper Corporation Survey, NPS, Historic American Engineering Record, 1985.

4. Douglass, "Kennecott Mines," 11; Grauman, *Big Business in Alaska*, 15 ff.

5. Grauman, *Big Business in Alaska*, 20–21.

6. Ibid., 53; Douglass, "Kennecott Mines," 11.

7. "Iron Trail Ends 27-Year Career; Last Train In," *Cordova Daily Times*, November 11, 1938, cited by Janson, *Copper Spike*, 159.

8. For recent theoretical essays on environmental history and its methodologies, see Donald Worster, "History as Natural History: An Essay on Theory and Method," *Pacific Historical Review* 53 (1984), 1–19; Richard White, "American Environmental History: The Development of a New Field," *Pacific Historical Review* 54 (August 1985), 297–335; *Theories of Environmental History*, special issue of *Environmental Review* 11 (Winter 1987); Donald Worster, *The Ends of the Earth: Perspectives on Modern Environmental History* (New York: Cambridge University Press, 1989); and the symposium on environmental history in the *Journal of American History* 76 (March 1990), 1087–1147.

9. For Alaska, a convenient place to start in constructing an environmental map of this sort is Charles W. Hartman and Philip R. Johnson, *Environmental Atlas of Alaska* (Fairbanks: University of Alaska Institute of Water Resources, 1984). For general historical background, the most comprehensive volumes include Hubert Howe Bancroft, *History of Alaska, 1730–1885* (San Francisco: H. H. Bancroft, 1886); Ernest Gruening, *The State of Alaska* (New York: Random House, 1954); Claus-M. Naske and Herman E. Slotnick, *Alaska: A History of the 49th State*, 2d ed. (Norman: University of Oklahoma Press, 1987); Melody Webb, *The Last Frontier: A History of the Yukon Basin of Canada and Alaska* (Albuquerque: University of New Mexico Press, 1985). See also the useful anthology Mary Childers Mangusso and Stephen W. Haycox, *Interpreting Alaska's History: An Anthology* (Anchorage: Alaska Pacific University Press, 1989).

10. Frederica de Laguna and Catherine McClellan, "Ahtna," in June Helm, ed. *Subarctic*, vol. 6, *The Handbook of North American Indians*, edited by William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1981), 661–62. For a useful historical survey of the environmental circumstances of natives in interior Alaska, see Jean S. Aigner et al., eds., *Interior Alaska: A Journey through Time* (Anchorage: Alaska Geographic Society, 1986).

11. Useful collections of native animal narratives from communities neighboring the Ahtnas include John F. C. Johnson, comp., *Eyak Legends of the Copper River Delta, Alaska: Stories and Photographs* (Anchorage: Alaska Geographic Society, n.d.), and *Chugach Legends: Stories and Photographs of the Chugach Region* (Anchorage: Alaska Geographic Society, c. 1984).

12. Frederica de Laguna, "The Atna of the Copper River, Alaska: The World of Men and Animals," *Folk: Dansk Ethnografisk Tidsskrift* 11–12 (1969–70), 19. De Laguna is the chief anthropological chronicler of these people; her ethnographic fieldwork began in 1938.

13. The most powerful evocation of this universe is Richard K. Nelson, *Make Prayers to the Raven: A Koyukon View of the Northern Forest* (Chicago: University of Chicago Press, 1983). See also Richard K. Nelson, *Hunters of the Northern Ice* (Chicago: University of Chicago Press, 1969) and *Hunters of the Northern Forest: Designs for Survival among the Alaska Kutchin* (Chicago: University of Chicago Press, 1973); Adrian Tanner, *Bringing Home Animals: Religious Ideology and Mode of Production of the Mistassini Cree Hunters* (New York: St. Martin's Press, 1979); and Calvin Martin, *Keepers of the Game: Indian-Animal Relationships in the Fur Trade* (Berkeley: University of California Press, 1978); and Martin, ed., *The American Indian and the Problem of History* (New York: Oxford University Press, 1986).

14. De Laguna, "Atna of the Copper River," 24–25.

15. I tried to suggest the importance of this question in the third chapter of William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill & Wang, 1983), 34–53. Barry Lopez writes wonderfully about the environmental cycles of the Far Arctic North in his *Arctic Dreams: Imagination and Desire in a Northern Landscape* (New York: Charles Scribner's Sons, 1986).

16. Henry T. Allen, "Report of a Military Reconnoissance in Alaska, Made in 1885 by Lieut. Henry T. Allen, Second United States Cavalry," *Compilation of Narratives of Explorations in Alaska*, Report of the Committee on Military Affairs, U.S. Senate, 56th Congress, 1st Session, Report No. 1023, 1900, 471. The narrative portion of Allen's classic report (but not his ethnographic and geological summary) has been reprinted as *An Expedition to the Copper, Tanana, and Koyukuk Rivers in 1885* (Anchorage: Alaska Northwest Publishing Co., 1985). I will cite the latter, more accessible text when referring to the passages it contains.

17. Ferdinand Petrovich von Wrangell, "The Inhabitants of the Northwest Coast of America" (1839), translated and edited by James W. Van Stone, *Arctic Anthropology* 6:2 (1970), 7.

18. Allen, *Expedition to the Copper, Tanana, and Koyukuk Rivers*, 57. For the general background of Allen's expedition, see Morgan B. Sherwood, *Exploration of Alaska, 1865–1900* (New Haven: Yale University Press, 1965), 106–18.

19. Allen, *Expedition to the Copper, Tanana, and Koyukuk Rivers*, 32.

20. Ibid., 38–39.

21. Ibid., 45.

22. Among these different commodities, the literature on the western fur trade is the best developed and most suggestive. See, for instance, Harold A. Innis's classic *The Fur Trade in Canada* (New Haven: Yale University Press, 1930), which remains one of the few works that places the trade in a truly national and international economic perspective; Paul C. Phillips, *The Fur Trade* (Norman: University of Oklahoma Press, 1961); David J. Wishart, *The Fur Trade of the American West, 1807–1840: A Geographical Synthesis* (Lincoln: University of Nebraska Press, 1979); Robert A. Trennert, *Indian Trade on the Middle Border* (Lincoln: University of Nebraska Press, 1981); and Carolyn Gilman, ed., *Where Two Worlds Meet* (St. Paul: Minnesota Historical Society, 1982). Among the most valuable of the recent studies is Arthur Ray's uniquely quantitative and geographical study of *Indians in the Fur Trade* (Toronto: University of Toronto Press, 1974), along with its companion volume, coauthored by Donald Freeman, *"Give Us Good Measure": An Economic Analysis of Relations between the Indians and the Hudson's Bay Company before 1763* (Toronto: University of Toronto Press, 1978). That the best economic analysis of the trade dates from before 1800 is testimony both to the quality of Hudson's Bay Company records and to Ray's skill as a scholar, but it suggests that comparable studies remain to be written about later periods and other geographic areas as well. It is likewise true that no scholar has yet done justice to the history of fur farming, the twentieth-century industry that emerged as a response to the inadequacy, unreliability, or collapse of wild fur populations. A preliminary survey of this subject is Anne Malin Erling, "The American Silver Fox Farming Industry: A Twentieth-Century Fur Trade," senior essay, Yale University, 1987.

22. For a masterful survey of worldwide trade networks of this sort, see Eric R. Wolf, *Europe and the People without History* (Berkeley: University of California Press, 1982).

24. De Laguna and McClellan, "Ahtna," *Subarctic*, 642–43.

25. Good general works on the Russian presence in Alaska include P. A. Tikhmenev, *A History of the Russian-American Company* (1865), translated and edited by Richard A. Pierce and Alton S. Donnelly (Seattle: University of Washington Press, 1978), and Hector Chevigny, *Russian America: The Great Alaskan Venture, 1741–1867* (Portland, Ore.: Binford & Mort, 1965). James R. Gibson, *Imperial Russia in Frontier America: The Changing Geography of Supply of Russian America, 1784–1867* (New York: Oxford University Press, 1976) is particularly good on Russian America's international trade networks.

26. Wrangell, "Northwest Coast Inhabitants," 8.

27. Tanner, *Bringing Home Animals*.

28. On the destruction of Alaska's marine mammals, see Charles M. Scammon, *The Marine Mammals of the North-western Coast of North America* (San Francisco: John H. Carmany & Co., 1874); Henry W. Elliott, *Our Arctic Province: Alaska and the Seal Islands* (New York: Charles Scribner's Sons, 1897); and John W. Bockstoce, *Whales, Ice, and Men: The History of Whaling in the Western Arctic* (Seattle: University of Washington Press, 1986).

29. Wrangell, "Northwest Coast Inhabitants," 5.

30. Allen, "Report of a Military Reconnoissance," 487.

31. Lieutenant W. R. Abercrombie, "Report of a Supplementary Expedition into the Copper River Valley, 1884," *Compilation of Narratives of Explorations in Alaska*, Report of the Committee on Military Affairs, U.S. Senate, 56th Congress, 1st Session, Report No. 1023, 1900, 579.

32. Morgan Sherwood, *Big Game in Alaska: A History of Wildlife and People* (New Haven: Yale University Press, 1981), 45.

33. "Instructions" of H. Clay Wood, assistant adjutant general at Vancouver Barracks, Washington Territory, to Second Lieutenant Henry T. Allen, January 27, 1885, in Allen, *Expedition to the Copper, Tanana, and Koyukuk Rivers*, 13.

34. Ibid.

35. Ibid.

36. Alfred Hulse Brooks, *Blazing Alaska's Trails* (Fairbanks: University of Alaska and the Arctic Institute of North America, 1953), 488–92.

37. Inger Jensen Ricci, "Childhood Memories of Kennecott," "Wrangell-Saint Elias: International Mountain Wilderness," *Alaska Geographic* 8:1 (1981), 80–89.

38. There is less written about property law and its relation to environmental history than there should be. On mining rights, Robert W. Swenson's "Legal Aspects of Mineral Resources Exploitation," in Paul Wallace Gates, *History of Public Land Law Development* (Washington, D.C.: Government Printing Office, 1968), 699–764, remains an indispensable survey of this topic, as does Gates's treatment of land law in the same book. I discuss different cultural systems of property in New England in my *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill & Wang, 1983), 54–81, but necessarily employed only the broadest of brushstrokes in so doing. That the problem is, in fact, far richer and deserves much more extensive and subtler treatment is demonstrated by Arthur F. McEvoy's superb *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850–1980* (New York: Cambridge University Press, 1986). Donald J. Pisani reviews much of the literature relevant to this subject in his useful "Promotion and Regulation: Constitutionalism and the American Economy," *Journal of American History* 74:3 (December 1987), 740–68, and

"Enterprise and Equity: A Critique of Western Water Law in the Nineteenth Century," *Western Historical Quarterly* 18 (1987), 15–38. John Phillip Reid offers a similarly useful review in "Some Lessons of Western Legal History," *Western Legal History* 1:1 (Spring 1988), 3–21; his own *Law for the Elephant: Property and Social Behavior on the Overland Trail* (San Marino: Huntington Library, 1980) is richly suggestive of the possibilities of this field. The handful of scholars who have worked in western legal history have been too long ignored by their colleagues; one can only hope that the founding of the new journal *Western Legal History* will begin to help remedy that problem. As Lawrence M. Friedman has remarked, "the law of property is still waiting for its prince to come and rouse it from the long sleep of obscurity." Lawrence M. Friedman, *A History of American Law*, 2d ed. (New York: Simon & Schuster, 1985), 703.

39. In this area the work of James Willard Hurst stands as one of the great monuments of twentieth-century scholarship, exploring the ways in which law has shaped the changing relationships among markets, economic growth, and state power. Hurst's extraordinary analysis of the lumber industry in northern Wisconsin suggests just how critical legal institutions were in defining the shape of resource markets and environmental change and is a superb model for other such studies. Yet his work, perhaps because of its sheer daunting bulk, has produced surprisingly few offspring. There are suggestive works on the relations among markets, government regulation, and corporations during the nineteenth century, but these have not by and large pursued Hurst's fortunate interest in natural resources. See James Willard Hurst, *Law and the Conditions of Freedom in the Nineteenth-Century United States* (Madison: University of Wisconsin Press, 1956); *Law and Markets in United States History: Different Modes of Bargaining among Interests* (Madison: University of Wisconsin Press, 1982); and *Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915* (Cambridge: Harvard University Press, 1964).

40. This history may be traced in the annual reports of the Kennecott Copper Corporation, 1915–1939; see also Carpel L. Breger, "Story of Kennecott Copper," *Financial World* 35:21–23 (May 23, 30, June 6, 1921).

41. For surveys of the Alaska salmon industry, see Richard A. Cooley, *Politics and Conservation: The Decline of the Alaska Salmon* (New York: Harper & Row, 1963) and Patricia Roppel, *Alaska's Salmon Hatcheries, 1891–1959, Alaska Historical Commission Studies in History*, No. 20, 1982. The most sophisticated study of fishery development on the Pacific coast is McEvoy, *The Fisherman's Problem*.

42. See, for instance, Donald W. Meinig, "The Growth of Agricultural Regions in the Far West, 1850–1910," *Journal of Geography* 54 (1955), 221–32; Donald Meinig, *The Great Columbia Plain, 1805–1910* (Seattle: University of Washington Press, 1968); and Richard White, *Land Use, Environment, and Social Change: The Shaping of Island County, Washington* (Seattle: University of Washington Press, 1980).

43. Carl Ortwin Sauer, *The Early Spanish Main* (Berkeley: University of California Press, 1966); Wolf, *Europe and People without History;* and Sidney W. Mintz, *Caribbean Transformations* (Baltimore: Johns Hopkins University Press, 1984) and *Sweetness and Power: The Place of Sugar in Modern History* (New York: Viking Penguin, 1985).

44. Alfred W. Crosby, Jr., *The Columbian Exchange: The Biological and Cultural Consequences of 1492* (Westport, Conn.: Greenwood Press, 1972) and *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (New York: Cambridge University Press, 1986).

45. De Laguna and McClellan, "Ahtna," *Subarctic*, 652–57; Tanner, *Bringing Home Animals*.

46. William D. Douglass to Melody Webb Grauman, March 25, 1976, quoted in Grauman, *Big Business in Alaska*, 41.

47. Ricci, "Childhood Memories of Kennecott ," 82–83; Grauman, *Big Business in Alaska*, 46.

48. Ricci, "Childhood Memories of Kennecott," 89.

49. Priscilla Russell Kari, *Tanaina Plantlore Dena'ina K'et'una*, 2d ed. (National Park Service, 1987), 67–68.

50. To compare Kennecott with mining in Alaska today, see "Alaska's Oil / Gas & Minerals Industry," *Alaska Geographic* 9:4 (1982).

TO HEAR AN OLD VOICE
Rediscovering Native Americans in American History

1. Mark Twain, *Roughing It* (Hartford: American Publishing Company, 1872), 146–49.

2. *Buffalo Bill and the Indians, or Sitting Bull's History Lesson*, Dino de Laurentiis Corporation, 1976. Available in videocassette through Key Video, a division of CBS / Fox Video.

3. James Merrell, "Some Thoughts on Colonial Historians and American Indians," *William and Mary Quarterly*, 3d series, XLVI:1 (January 1989), 94–119.

4. Gary Nash, *Red, White and Black* (Englewood Cliffs, N.J.: Prentice-Hall, 1984); Edmund Morgan, *American Slavery, American Freedom* (New York: W. W. Norton, 1975); Bernard Bailyn, *The Peopling of British North America* (New York: Alfred A. Knopf, 1986). See also Bailyn's *Voyagers to the West* (New York: Alfred A. Knopf, 1986).

5. Edward Bruner, "Ethnography as Narrative," in *The Anthropology of Experience*, edited by Victor W. Turner and Edward M. Bruner (Urbana: University of Illinois Press, 1986), 139.

6. Two books that explore at length the theme of the Indian as the necessary "other" are Leslie A. Fiedler, *The Return of the Vanishing American* (New York: Stein and Day, 1968) and Robert F. Berkhofer, Jr., *The White Man's Indian: Images of the American Indian from Columbus to the Present* (New York: Alfred A. Knopf, 1978).

7. Stan Steiner, *The New Indians* (New York: Harper & Row, 1968); Deward Walker, *The Emergent Native Americans* (Boston: Little, Brown, 1972). My observations about the character of these titles ought not be taken as an evaluation of their contents. For a brief but useful discussion of the mistaken idea that the Native American literary tradition is a creation of the twentieth century, see the introduction to Daniel F. Littlefield, Jr., and James W. Parins, *A Biobibliography of Native American Writers, 1772–1924* (Metuchen: Scarecrow Press, 1981), xi–xvii.

8. Ella Deloria's publications include *Dakota Texts* (New York: G. E. Stechert & Co., 1932); *Dakota Grammar, Memoirs of the National Academy of Sciences* 23:2 (1941); *Speaking of Indians* (New York: Friendship Press, 1944); and *Waterlily* (Lincoln: University of Nebraska Press, 1988).

9. Chamberlain's comment appears in William G. McLoughlin, *Cherokees and*