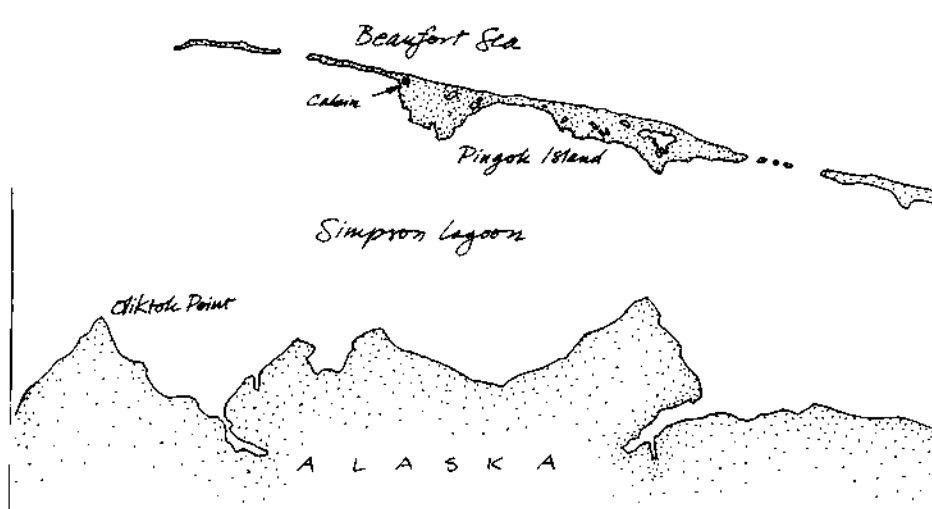
Seven

THE COUNTRY OF THE MIND

THE DAILY CYCLE of tides rising and falling on the narrow beaches of Pingok Island during the open-water season is hard to read. In this part of the Arctic Ocean, where the Beaufort Sea washes against the north coast of Alaska, the vertical rise of the tide can be measured with a fingertip. On a windless day one can see reflected clouds undisturbed at the rim of the ocean's surface. It is possible to stand toe-to at the water's edge and, if one has the patience, see it gain only the heels of one's boots in six hours. Another peculiarity inherent in the land. In the eastern Arctic, at Ungava Bay and in embayments of the Canadian Archipelago, the tides are more substantial, rising up to 40 feet.



Pingok Island.

Pingok Island lies at yo^TSI and i49°35'W, a few miles off the north Alaska coast, some 30 miles east of the Colville River delta. It is the westernmost of the Jones Islands, a stretch of barrier islands that protects a shallow area along the coast called Simpson Lagoon, favored by migrating ducks.

This particular part of the arctic coast was little visited by Westerners until recently. Prudhoe Bay, where oil was discovered in February 1968, is 40 miles to the east; on clear days black clouds from flare-offs in those oil fields are faintly visible on the horizon. To the southwest a few miles, at Oliktok Point on the mainland, is an operational DEW line station. Pingok Island itself carries traces of modern inquiries into the region: the ubiquitous detritus of industrial reconnoitering and military exercises; and refuse from recent Eskimo and scientific encampments—strands of yellow polyethylene rope, empty wooden boxes and white gas tins, and outboard motor parts.

The most noticeable, man-made features of this island—it is about four and a half miles long and a half-mile wide at several points—are a shed and two pale yellow clapboard buildings that

stand at its west end, and a cluster of coastal survey markers erected on the east end. For parts of two summers I lived with several marine biologists in one of the small, one-room buildings at the edge of the western beach. We were at sea most of the time; but on "weather days," when the inevitable August snow squalls or heavy seas prohibited our working efficiently from a small boat, I walked the island's tundra plain.

This is an old business, walking slowly over the land with an appreciation of its immediacy to the senses and in anticipation of what lies hidden in it. The eye alights suddenly on something bright in the grass—the chitinous shell of an insect. The nose tugs at a minute blossom for some trace of arctic perfume. The hands turn over an odd bone, extrapolating, until the animal is discovered in the mind and seen to be moving in the land. One finds anomalous stones to puzzle over, and in footprints and broken spiderwebs the traces of irretrievable events.

During those summers I found, too, the molted feathers of ducks washed up in great wrack lines, in heaps, on the beach. Undisturbed in shallow waters on the lagoon side, I found hoof-prints of caribou, as sharp as if the animals had stepped there in fresh clay only a moment before. They must have crossed over in late spring, on the last of the ice. I squatted down wherever the evidence of animals was particularly strong amid the tundra's polygon fractures. Where Canada geese had cropped grass at the edge of a freshwater pond; at the skull of a ringed seal carried hundreds of yards inland by ice, or scavengers; where grass had been flattened by a resting fox.

I saw in the sea face of a low bench of earth along the beach the glistening edge of an ice lens that underlay the tundra. The surface layer of plants and dirt overhung it like a brow-thatch of hair. I tried persistently but without success to sneak up on the flocks of feeding geese. I lost and regained images of ptarmigan against the ground, because of their near-perfect camouflage. I brought back to the cabin to set on a shelf by my bed castings of

the landscape, to keep for a while and wonder over. The fractured intervertebral disk of a belukha whale. The prehistoric-looking exoskeleton of a marine isopod. And handfuls of feathers. Tangible things from my gentle interrogations, objects to which some part of a pervasive and original mystery still clung.

In the sometimes disconcerting summary which is a photograph, Pingok Island would seem bleak and forsaken. In winter it disappears beneath whiteness, a flat white plain extending seaward into the Beaufort Sea ice and landward without a border into the tundra of the coastal plain. The island emerges in June, resplendent with flowers and insects and birds, only to disappear again in a few months beneath the first snowstorms. To a Western imagination that finds a stand of full-crowned trees heartening, that finds the flight and voice of larks exhilarating, and the sight of wind rolling over fields of tall grass more agreeable, Pingok seems impoverished. When I arrived on the island, I, too, understood its bleak aspect as a category, the expression of something I had read about or been told. In the weeks during which I made some passing acquaintance with it, its bleakness was altered, however. The prejudice we exercise against such landscapes, imagining them to be primitive, stark, and pagan, became sharply apparent. It is in a place like this that we would unthinkingly store poisons or test weapons, land like the deserts to which we once banished our heretics and where we once loosed scapegoats with the burden of our transgressions.

The differing landscapes of the earth are hard to know individually. They are as difficult to engage in conversation as wild animals. The complex feelings of affinity and self-assurance one feels with one's native place rarely develop again in another landscape.

It is a convention of Western thought to believe all cultures are compelled to explore, that human beings seek new land because their economies drive them onward. Lost in this valid but nevertheless impersonal observation is the notion of a simpler longing, of a human desire for a less complicated life, for fresh intimacy and

renewal. These, too, draw us into new landscapes. And desire causes imagination to misconstrue what it finds. The desire for wealth, for revivification, for triumph, as much or more than scientific measurement and description, or the imperatives of economic expansion, resolves the geography of a newfound landscape.

IN 1893, Frederick Jackson Turner read a paper in Chicago before the American Historical Association that changed the course of American historiography—the way historians understand how elements of the past are causally related. Turner's idea, which came to be called the Frontier Hypothesis, has become so much a part of the way we think about the country's past that it now seems self-evident. At the time he presented it, it was unheralded and unique.

Prior to 1893, most historians believed America had been shaped by the desire to separate itself from European influences, or by the economic and social issues that came to a head in the Civil War. Turner offered a third view, that America was shaped by both the fact and the concept of its westering frontier. The national character, so distinguished by enterprise, initiative, and hard work, he said, derived from an understanding of its citizens' experiences on the frontier. Historians generally accepted Turner's hypothesis, and have refined upon and extrapolated from it for nearly a century.

Turner's observation showed at least two things: the narrative direction that a nation's history takes is amenable to revision; and the landscapes in which history unfolds are both real, that is, profound in their physical effects on mankind, and not real, but mere projections, artifacts of human perception. Nowhere in North American history is this more apparent than in the westward movement of the nineteenth century. Politicians and promoters, newspaper editors and businessmen argued hotly over the suitability of the tallgrass and shortgrass prairies for farming. In most of these arguments the political cant of boomers and nay-sayers and the abstractions of agrarian theorists counted for more than the factual testimony of the land in the form of rainfall records or the statements of people who lived there.

Perhaps this is obvious. In the modern age, one of the most irksome, and ironic, of political problems in North America is the promulgation of laws and regulations from Washington and Ottawa that seem grossly ignorant of the landscapes to which they apply. We all, however, apprehend the land imperfectly, even when we go to the trouble to wander in it. Our perceptions are colored by preconception and desire. The physical landscape is an unstructured abode of space and time and is not entirely fathomable; but this does not necessarily put us at a disadvantage in seeking to know it. Believing them to be fundamentally mysterious in their form and color, in the varieties of life inherent in them, in the tactile qualities of their soils, the sound of the violent fall of rain upon them, the smell of their buds—believing landscapes to be mysterious aggregations, it becomes easier to approach them. One simply accords them the standing that one grants the other mysteries, as distinguished from the puzzles, of life.

I recall in this context two thoughts. A man in Anaktuvuk Pass, in response to a question about what he did when he visited a new place, said to me, "I listen." That's all. I listen, he meant, to what the land is saying. I walk around in it and strain my senses in appreciation of it for a long time before I, myself, ever speak a word. Entered in such a respectful manner, he believed, the land would open to him. The other thought draws, again, on the experience of American painters. As they sought an identity apart from their European counterparts in the nineteenth century, they came to conceive of the land as intrinsically powerful: beguiling and frightening, endlessly arresting and incomprehensibly rich, unknowable and wild. "The face of God," they said.

As I step out of our small cabin on Pingok Island, the undistinguished plain of tundra spreads before me to the south and east. A few glaucous gulls rise from the ground and drop back, and I feel the cold, damp air, like air from a refrigerator, against my cheeks. A few yards from the door, stark and alone on the tundra, a female common eider lies dead. A few more yards to the west, a bearded-

seal skin has been expertly stretched between short wooden stakes to dry. A few yards beyond, a northern phalarope spins wildly on the surface of a freshwater pond, feeding on zooplankton.

A southwest wind has been blowing for two days; it's the reason we are ashore today. The sky threatens squalls and snow. I head south across the tundra toward the lagoon, wondering if I will find ducks there. In my mind is a vague plan: to go there, then east along the coast to a place where the tundra is better drained, easier walking, then back across the island, and to come home along the seaward coast.

In such flat terrain as this, even with the lowering skies, I brood on the vastness of the region. The vastness is deceptive, however. The journals of arctic explorers are full of examples of messages stashed out there with a high expectation of their discovery, because the prominent places in such a featureless landscape are so obvious. They are the places a human eye notices right away. And there is something, too, about the way the landscape funnels human movement, such that encounters with strangers are half expected, as is the case in a desert crossing. Human beings are so few here and their errands such a part of the odd undercurrent of knowledge that flows in a remote region that you half expect, too, to know of the stranger. Once, camped on the upper Yukon, I saw a man in a distant canoe. When he raised his field glasses to look at a cliff where peregrine falcons were nesting, I surmised who he was (a biological consultant working on a peregrine census) from a remark I had overheard a week before in a small restaurant in Fairbanks. He probably knew of my business there, too. Some of the strangeness went out of the country in that moment.

If the mind releases its fiduciary grip on time, does not dole it out in a fretful way like a valued commodity but regards it as undifferentiated, like the flatness of the landscape, it is possible to transcend distance—to travel very far without anxiety, to not be defeated by the great reach of the land. If one is dressed well and carrying a little food, and has the means to secure more food and to construct shelter, the mind is that much more free to work with the

senses in an appreciation of the country. The unappealing tundra plain, I recall, is to its denizens a storehouse of food and instant tools.

As I thread my way southwest, along the margins of frost polygons, I am aware of the movement of birds. A distant speck moves across the sky with a loon's trajectory. A Savannah sparrow flits away over the ground. The birds come and go—out to sea to feed or to the lagoon to rest—on a seemingly regular schedule. Scientists say the pattern of coming and going, of feeding and resting, repeats itself every twenty-four hours. But a description of it becomes more jagged and complex than the experience, like any parsing of a movement in time.

The sound of my footfall changes as I step from damp ground to wet, from wet to dry. Microhabitats. I turn the pages of a mental index to arctic plants and try to remember which are the ones to distinguish these borders: which plants separate at a glance mesic tundra from hydric, hydric from xeric? I do not remember. Such generalities, in any case, would only founder on the particulars at my feet. One is better off with a precise and local knowledge, and a wariness of borders. These small habitats, like the larger landscapes, merge imperceptibly with each other. Another, remembered landscape makes this one seem familiar; and the habits of an animal in one region provoke speculation about behavior among its relatives in another region. But no country, finally, is just like another. The generalities are abstractions. And the lines on our topographic maps reveal not only the scale at which we are discerning, but our tolerance for discrepancies in nature.

A tundra botanist once described to me her patient disassembly of a cluster of plants on a tussock, a tundra mound about 18 inches high and a foot or so across. She separated live from dead plant tissue and noted the number and kind of the many species of plants. She examined the insects and husks of berries, down to bits of things nearly too slight to see or to hold without crushing. The process took hours, and her concentration and sense of passing time became fixed at that scale. She said she remembered looking up at

one point, at the tundra that rolled away in a hundred thousand tussocks toward the horizon, and that she could not return her gaze because of that sight, not for long minutes.

My route across Pingok seems rich, but I am aware that I miss much of what I pass, for lack of acuity in my senses, lack of discrimination, and my general unfamiliarity. If I knew the indigenous human language, it would help greatly. A local language discriminates among the local phenomena, and it serves to pry the landscape loose from its anonymity.

I know how much I miss—I have only to remember the faces of the Eskimos I've traveled with, the constant flicker of their eyes over the countryside. Even inside their houses men prefer to talk while sitting by a window. They are always looking away at the land or looking up to the sky, the coming weather. As I near the lagoon, pondering the identity of something I saw a flock of ptarmigan eating, I smile wryly at a memory: it was once thought that scurvy was induced in the Arctic by the bleakness of its coasts.

There are no ducks nearby in the lagoon. With my field glasses I can just make out the dark line of their rafts on the far side of the water, a lee shore. I settle myself in a crease in the tundra, out of the wind, arrange my clothing so nothing binds, and begin to study the far shore with the binoculars. After ten or fifteen minutes I have found two caribou. Stefansson was once asked by an Eskimo to whom he was showing a pair of binoculars for the first time whether he could "see into tomorrow" with them. Stefansson took the question literally and was amused. What the *inuk* probably meant was, Are those things powerful enough to see something that will not reach you for another day, like migrating caribou? Or a part of the landscape suitable for a campsite, which you yourself will not reach for another day? Some Eskimo hunters have astounding natural vision; they can point out caribou grazing on a slope three or four miles away. But the meticulous inspection of the land that is the mark of a good hunter becomes most evident when he uses a pair of field glasses. Long after the most inquiring nonnative has grown weary of glassing the land for some clue to the movement of animals, a hunter is still scouring its edges and interstices. He may take an hour to glass 360° of the apparently silent tundra, one section at a time.

You can learn to do this; and such scrutiny always turns up a ground squirrel, an itinerant wolverine, a nesting bird—something that tells you where you are and what's going on. And when you fall into the habit, find some way like this to shed your impatience, you feel less conspicuous in the land.

I walk a long ways down the beach before arriving at the place where the tundra dries out, and turn inland. Halfway across I find the skull of a goose, as seemingly random in this landscape as the dead eider in the grass by the cabin. A more thoughtful inquirer, someone dependent upon these bits of information in a way that I am not, would find out why. To the southwest I can see a snow squall—I want to reach the seaward side of the island before it arrives, in case there is something worse behind it. The shoreline is my way home. I put the paper-thin skull back on the ground. Far to the east I see a dilapidated spire of driftwood, a marker erected in 1910 by Ernest Leffingwell when he was mapping these coasts. Leaning slightly askew, it has the aspect of an abandoned building, derelict and wind-punished. It is a monument to the desire to control vastness. It is a referent for the metes and bounds that permit a proper division and registry of the countryside, an assignment of ownership.

THE western history of Pingok Island comprises few events. John Franklin, a young British naval officer, led an overland party almost this far west from the mouth of the Mackenzie in 1826, trying for a rendezvous at Point Barrow, 250 miles farther on. But with bad weather and the physical strain on the men, he "reached the point beyond which perseverance would be rashness," and turned back, in the fall of that year. Robert M'Clure put a party ashore in August 1850, to entreat with a small group of resident Eskimo. The Eskimos regarded *Investigator* as "a swimming island," wrote a thirty-three-year-old Moravian missionary with the shore party.

"At every movement of the ship, though it was half an hour's pull distant, they showed fresh alarm and an electric shock, as it were, went through them all."

Late in the nineteenth century the island was visited by American whalers, who took on fresh water from its ponds. Stefansson abandoned the ill-fated *Karluk* nearby, in September 1913. (Caught in the ice, the ship, a brigantine whaler refitted as a scientific expeditionary vessel, later drifted far to the west, where it was crushed and sank, with the subsequent loss of half the party.) Traders and explorers like Leffingwell were also in the area in these years. In 1952 an archaeologist named William Irving made the first excavations of the island's prehistoric sites. A few years later, the DEW line station was built at Oliktok. In the 1960s the U.S. Navy built two sheds and a 10- by 18-foot cabin for the use of scientific field parties working out of the Naval Arctic Research Laboratory at Barrow, and later for the federal Outer Continental Shelf Environmental Assessment Program and other projects. These buildings also occasionally shelter Eskimos traveling along the coast, whence the bearded-seal skin pegged on the tundra by the door of the cabin we were using.

The aboriginal history of the island is much deeper and also more obscure. It is likely, because of the way it is situated, that the island has been used by hunting peoples for centuries, though probably not continually. Today, a dozen 400-year-old dwellings, outlined on the tundra by protruding driftwood logs and bowhead whale ribs, are the only traces of early occupation left. This stretch of North American coastline was apparently never heavily populated. The Pingok houses, however, constituted the largest prehistoric site on the north Alaska coast in 1981.

An astute archaeologist would have anticipated the remains of such an encampment here. Pingok Island gets its name from an Inupiatun word for "a rising of earth over a dome of ice." The reference is to a long sand dune on the seaward edge of the island which gives protection from storm surges. Such protection is rare along this coast. It would be noticed and taken advantage of.

Hunters camped at Pingok would benefit, too, from early access to bearded and ringed seals around the mouth of the Colville, where freshwater ice begins to disintegrate before the sea ice breaks up. On Simpson Lagoon they would find migrating geese and ducks. Along the beach are great supplies of driftwood (from the Mackenzie River), some of the trees 30 or 40 feet long. There are large freshwater ponds on the island, and from here there is good access to runs of char and to herds of belukha whale, and, in September, to bowhead whales headed west for Bering Strait. On the landward side of the lagoon they could expect to see caribou.

Excavations at the Pingok houses indicate that the people living here between 1550 and 1700 hunted all of these animals, and also walrus and polar bear. Among the more intriguing objects unearthed are a polar-bear-tooth(?) fish lure, a child's miniature hunting bow, and a piece of caribou-antler(P) plate armor.

Standing by the remains of these houses, one is struck by the fact that in the Arctic so much human history lies undisturbed on the surface of the land. And by the contrast with a more easily retrieved past, such as our own. Here is a prong from a bird spear; here is a walrus-tooth pendant; but what were the ideas attached to these objects?

The remains of other, more modern Eskimo dwellings are also found on Pingok—sod and whalebone houses from the 1920s. In recent years ethnohistorians have visited the islands, bringing with them the people who once lived in these houses. The people were interviewed here with these artifacts and the landscape itself close at hand in order to plumb "the memory culture," the culture tied to tools no longer used and still most accurately described in the Inupiatun language, whose vocabulary is rapidly fading.

One Sunday afternoon in the summer of 1981 several Eskimos from the village of Barrow paid us a visit on Pingok. They were conducting a land-use survey, a complex process of land assessment used by native peoples to substantiate their aboriginal claims to certain sections of land. We talked a little about the Eskimo "history" of Pingok Island (as if, without such corroborative de-

tails, acceptable to the men who owned the maps, the place would remain vague and unclaimable). Only some sort of acceptable, verifiable history could save it for them now. We all turned, with more ease and enthusiasm, to talk of hunting. Such chance conversations as this, far from the villages, where political and racial tensions can be strong, are often cordial. No one is apt to pursue a point that might lead to disagreement, or to ask a question that might be construed as prying. It is always acceptable, and good, to speak of hunting. A great deal of information about the local landscape passes back and forth in this context. One feels here, sharing the details of animals' lives in the memories of those present, the authority for a claim to the land just as legitimate and important as the things found at a 400-year-old house.

After they left—they were traveling in a small boat toward the east (and to most foreign observers they would have seemed underdressed and poorly provisioned for their journey, a common impression)—we talked among ourselves about the Eskimos' cultural history. The men who left carried with them a borrowed historiography, a matrix they put down like a net in the undifferentiated sphere of time that welled up in their own traditional and unwritten history. It is a system they are becoming familiar, and handy, with. And there was great dignity and authority in the Eskimo women who sat on driftwood logs on Pingok Island, recalling into tape recorders the details of their lives from so many years ago. One could so easily imagine, as memory bloomed before the genuine desire of another to know, filaments appearing in the wind, reattaching them to the land, even as they spoke.

Land-use-and-occupancy projects have been conducted by and with native peoples throughout the Arctic, in furtherance of their land claims and to protect their hunting rights. These studies have revealed a long and remarkably unbroken connection between various groups of indigenous people and the particular regions of the Arctic they inhabit. It is impossible to separate their culture from these landscapes. The land is like a kind of knowledge traveling in time through them. Land does for them what architecture

sometimes does for us. It provides a sense of place, of scale, of history; and a conviction that what they most dread—annihilation, eclipse—will not occur.

"We are here [i.e., alive now in this particular place] because our ancestors are real," a man once told an interviewer. The ancestors are real by virtue of their knowledge and use of the land, their affection for it. A native woman, alone and melancholy in a hospital room, told another interviewer she would sometimes raise her hands before her eyes to stare at them: "Right in my hand, I could see the shorelines, beaches, lakes, mountains, and hills I had been to. I could see the seals, birds, and game. . . ." Another Eskimo, sensing the breakup of his culture's relationships with the land, the replacement of his ancient hunting economy by another sort of economy, told an interviewer it would be best all around if the Inuit became "the minds over the land." Their minds, he thought, shaped as they were to the specific contours of the land, could imagine it well enough to know what to do. Like most Eskimos, as the land-use-and-occupancy surveys made clear, he could not grasp the meaning of a life divorced from the landscape—the animals, the weather, the sound of ice, the taste and nourishment that came from "the food that counts."

In a long passage in *The Central Eskimo* (1888), Franz Boas describes the birth of a child and the types of clothing the child wears during the first few days of its life—a cap made of arctic hare fur, underclothes of bird feathers, a hood made of a caribou fawn with the ears attached. One is struck by the great efforts of the mother, especially, to confirm the child immediately in a complex and intricate relationship with "the land," the future source of the child's spiritual, psychological, and physical well-being. Nearly a hundred years later, Richard Nelson, a northern ethnologist, described a similar, modern Koyukon understanding of natural history in *Make Prayers to the Raven* (1983). While many things have changed, the evidence of continued intimacy with a local landscape—a practical knowledge of it, a sensitivity toward it, a supplication of it—is still clear. The incorporation of the land into

traditional stories—evidence of close association with the land and the existence of an uncanny and mesmerizing conformity of human behavior in response to subtleties in the landscape—is also still evident. The people, many of them, have not abandoned the land, and the land has not abandoned them. It is difficult, coming from cities far to the south, to perceive let alone fathom the richness of this association, or to assess its worth. But this archaic affinity for the land, I believe, is an antidote to the loneliness that in our own culture we associate with individual estrangement and despair.

I move the glasses off Leffingwell's tower. On the ridge of sand dune along the beach to the north I spot an arctic fox. A great traveler in winter, like the polar bear and the wolf. In summer, when water intervenes in the fox's coastal habitat, he may stay in one place—an island like this, for example. The fox always seems to be hurrying somewhere, then stopping suddenly to sit down and rest. He runs up on slight elevations and taps the air all over with his nose.

The arctic fox's fur runs to shades of brown in summer, which blend with ivory whites on its underparts. (In winter the coat is gleaming white or a grayish blue to pale beige, which is called "blue.") As with any animal, the facets of its life are complexly engaging. The extent and orderliness of its winter caches and its ability to withstand very cold weather are striking. Also its tag-along relationship with the polar bear. It is the friendliest and most trusting of the North American foxes, although it is characterized in many expedition journals as "impudent," derided for its "persistent cheekiness," and disparaged as a "parasite" and a scavenger. Arctic foxes are energetic and persistent in their search for food. They thoroughly scour the coastlines over which they travel and, like polar bears, will gather from miles around at a source of carrion. If it's a cook tent they choose instead, and thirty or forty of them are racing around, tearing furiously into everything, an expedition's initial sense of amusement can easily turn sour or violent. Arctic foxes so pestered Vitus Bering's shipwrecked second

Kamchatka expedition that the men tortured and killed the ones they caught with the unrestrained savagery one would expect of men driven insane by hordes of insects.

In his encounter with modern man in the Arctic, then, the fox's efficient way of life has sometimes gone fatally against him. (His dealings with modern Eskimos have fit more perfectly, though also fatally, with human enterprise. Once largely ignored, he became the most relentlessly pursued fur-bearer in the Arctic with the coming of the fur trade and the advent of the village trading post.)

I watch the fox now, traveling the ridge of the sand dune, the kinetic blur of its short legs. I have seen its (or another's) tracks at several places along the beach. I think of it traveling continuously over the island, catching a lemming here, finding part of a seal there, looking for a bird less formidable than a glaucous gull to challenge for its eggs. I envision the network of its trails as though it were a skein of dark lines over the island, anchored at slight elevations apparent to the eye at a distance because of their dense, rich greens or clusters of wildflowers.

Because the fox is built so much closer to the ground and is overall so much smaller than a human being, the island must be "longer" in its mind than four and a half miles. And traveling as it does, trotting and then resting, trotting and then resting, and "seeing" so much with its black nose—what is Pingok like for it? I wonder how any animal's understanding of the island changes over the year; and the difference in its shape to a gyrfalcon, a wolf spider, or a bowhead echolocating along its seashore. What is the island to the loon, who lives on the water and in the air, stepping awkwardly ashore only at a concealed spot at the edge of a pond, where it nests? What of the bumblebee, which spends its evening deep in the corolla of a summer flower that makes its world 8°F warmer? What is the surface of the land like for a creature as small but as adroit as the short-tailed weasel? And how does the recollection of such space guide great travelers like the caribou and the polar bear on their journeys?

A friend working one summer near Polar Bear Pass on Bathurst

Island once spotted a wolf running off with a duck in its mouth. He saw the wolf bury the duck, and when the wolf left he made for the cache. He couldn't find it. It was open, uncomplicated country. He retraced his steps, again took his bearings, and tried a second time. A third time. He never found it. The wolf, he thought, must have a keener or at least a different way of holding that space in its mind and remembering the approach. The land then appeared to him more complicated.

One day, out on the sea ice, I left the protection of a temporary building and followed a bundle of electric cables out into a blizzard. The winds were gusting to 40 knots; it was —20T. I stood for a long time with my back to the storm, peering downwind into the weak January light, fearful of being bowled over, of losing touch with the umbilical under which I had hooked a boot. Both its ends faded away in that swirling whiteness. In the 40-foot circle of visibility around me I could see only ice hummocks. I wondered what notions of "direction" a fox would have standing here, how the imperatives for food and shelter would affect us differently.

One can only speculate about how animals organize land into meaningful expanses for themselves. The worlds they perceive, their *Umwelten,* are all different.* The discovery of an animal's *Umwelt* and its elucidation require great patience and experimental ingenuity, a free exchange of information among different observers, hours of direct observation, and a reluctance to summarize the animal. This, in my experience, is the Eskimo hunter's methodology. Under ideal circumstances it can also be the methodology of Western science, t

* The world we perceive around an animal is its *environment;* what it sees is its *Umwelt,* or self-world. A specific environment contains many *Umivelten,* no two of which are the same. The concept, developed by Jakob von Uexkiill in 1934, assumes that the structure of the organs of perception, the emphasis each receives, the level of their sensitivity, and the ability of each to discriminate, are different in all animals,

t In practice, the two methodologies usually differ. The Eskimo's methods are less formal than those of the scientist, but not necessarily less rigorous. By comparison, Western scientists often fall far short on hours of observation; and they usually select only a few aspects of an animal's life to study closely. The Eskimo's ecological approach, however, his more broad-based consideration of an animal's interactions with many, some seemingly insignificant, aspects of its environment, is increasingly becoming a Western approach. Western science is better informed about the life history of migratory animals, especially distribution and movement. Eskimos, on the other hand, show a marked reluctance to extrapolate from the individual to include all other animals of that type, as Western scientists do. In recent years some scientists have come to learn more than many Eskimos about specific animals. The last generation of highly informed, broadly experienced native hunters is passing away.

Many Western biologists appreciate the mystery inherent in the animals they observe. They comprehend that, objectively, what they are watching is deceptively complex and, subjectively, that the animals themselves have nonhuman ways of life. They know that while experiments can be designed to reveal aspects of the animal, the animal itself will always remain larger than the sum of any set of experiments. They know they can be very precise about what they do, but that that does not guarantee they will be accurate. They know the behavior of an individual animal may differ strikingly from the generally recognized behavior of its species; and that the same species may behave quite differently from place to place, from year to year.

It is very hard to achieve a relatively complete and accurate view of an animal's life, especially in the Arctic, where field conditions present so many problems, limiting observation. Many biologists studying caribou, muskoxen, wolves, and polar bear in the North are more distressed by this situation than they otherwise might be. Industry, which pays much of the bill for this arctic research, is less interested in the entire animal than it is in those aspects of its life that might complicate or hinder development—or, to be fair, how in some instances industry might disrupt the animal's way of life. What bothers biologists is the narrowness of the approach, the haste with which the research must be conducted,

and, increasingly, the turning of an animal's life into numbers. The impersonality of statistics masks both the complexity and the ethics inherent in any wildlife situation. Biologists are anxious about "the tyranny of statistics" and "the ascendency of the [computer] modeler," about industry's desire for a "standardized animal," one that always behaves in predictable ways.

A Canadian scientist told me, "I hate as a biologist having to reduce the behavior of animals to numbers. I hate it. But if we are going to stand our ground against [head-long development] we must produce numbers, because that's all they will listen to. I am spending my whole *life* to answer these questions—they want an answer in two months. And anything a native says about animals, well, that counts for nothing with them. Useless anecdotes."

A belief in the authority of statistics and the dismissal of Eskimo narratives as only "anecdotal" is a dichotomy one encounters frequently in arctic environmental assessment reports. Statistics, of course, can be manipulated—a whale biologist once said to me, "If you punish the data enough, it will tell you anything." And the *Uwwelt* of a statistician, certainly, plays a role in developing the "statistical picture" of a landscape. The Eskimos' stories are politely dismissed not because Eskimos are not good observers or because they lie, but because the narratives cannot be reduced to a form that is easy to handle or lends itself to summary. Their words are too hard to turn into numbers.

What the uninitiated scientist in the Arctic lacks is not ideas about how the land works, or a broad theoretical knowledge of how the larger pieces fit together, but time in the field, prolonged contact with the specific sources of an understanding. Several Western scientists, including anthropologist Richard Nelson, marine mammal biologists John Burns, Francis Fay, and Kerry Finley, and terrestrial mammal biologist Robert Stephenson, have sought out Eskimo hunters as field companions in order to get a better understanding of arctic ecology. Nelson, who arrived in Wainwright in the early 1960s quite skeptical about the kinds of animal behavior the hunters had described to him, wrote a line any one of the others might have written after a year of traveling through the country with these people: "[Their] statements which seem utterly incredible at first almost always turn out to be correct."

I walk on toward the dune where the fox has disappeared. The inconspicuous plants beneath my feet, I realize, efficiently harbor minerals and nutrients and water in these acidic, poorly drained soils. They are compact; they distribute the weight of snow, of passing caribou and myself, so it does not crush them. The stems of these willows are shorter than those of their southern counterparts, with many more leaves to take advantage of the light. Tt may take years for a single plant to produce a seed crop. What do these plants murmur in their dreams, what of warning and desire passes between them?

It is beginning to snow a little, on a slant from the southeast. I walk on, my eye to the ground, out to the horizon, back to the ground. And what did Columbus, sailing for Zaiton, the great port of Cathay, think of the reach of the western Atlantic? How did Coronado assess the Staked Plain of Texas, the rawest space he ever knew, on his way to Quivera? Or Mungo Park the landscape of Africa in search of the Niger? What one thinks of any region, while traveling through, is the result of at least three things: what one knows, what one imagines, and how one is disposed.

What one knows is either gathered firsthand or learned from books or indigenous observers. This information, however, is assembled differently by each individual, according to his cultural predispositions and his personality. A Western traveler in the Arctic, for example, is inclined to look (only) for cause-and-effect relationships, or predator-prey relationships; and to be (especially) alert for plants and animals that might fill "gaps" in Western taxonomies. Human beings, further, are inclined to favor visual information over the testimony of their other senses when learning an area, and to be more drawn to animals that approximate their own scale. Our view is from a certain height above the ground. In any new country we want panoramas.

What one imagines in a new landscape consists of conjecture, for example, about what might lie beyond that near horizon of small hills, or the far line of the horizon. Often it consists of what one "hopes to see" during the trip—perhaps a barren-ground grizzly standing up on the tundra, or the tusk of a mammoth in the alluvial silt of a creek. These expectations are based on a knowledge of what has happened in this land for others. At a deeper level, however, imagination represents the desire to find what is unknown, unique, or farfetched—a snowy owl sitting motionless on the hips of a muskox, a flower of a favorite color never before reported, tundra swans swimming in a winter polynya.

Imagination also poses the questions that give a new land dimension in time. Are these wolverine tracks from *this* summer or the summer before? How old is this orange lichen? Will the caribou feeding placidly in this swale be discovered by those wolves traveling in the distance? Why did the people camped here leave this piece of carved seal bone behind?

The way we are disposed toward the land is more nebulous, harder to define. The reluctant traveler, brooding about events at home, is oblivious to the landscape. And no one is quite as alert as an indigenous hunter who is hungry. If one feels longing or compassion at the sight of something beautiful, or great excitement over some unexpected event, these may effect an optimistic disposition toward the land. If one has lost a friend in the Arctic to exposure after an airplane crash, or gone broke speculating in a northern mine, one might regard the land as antagonistic and be ill-disposed to recognize any value in it.

The individual desire to understand, as much as any difference in acuity of the senses, brings each of us to find something in the land others did not notice.

Over time, small bits of knowledge about a region accumulate among local residents in the form of stories. These are remembered in the community; even what is unusual does not become lost and therefore irrelevant. These narratives comprise for a native an intricate, long-term view of a particular landscape. And the stories

are corroborated daily, even as they are being refined upon by members of the community traveling between what is truly known and what is only imagined or unsuspected. Outside the region this complex but easily shared "reality" is hard to get across without reducing it to generalities, to misleading or imprecise abstraction.

The perceptions of any people wash over the land like a flood, leaving ideas hung up in the brush, like pieces of damp paper to be collected and deciphered. No one can tell the whole story.

I must set my face to the wind to head west, back toward the cabin. I drop down to the seaward beach where I will have the protection of the dune. Oldsquaw and eider ducks ride the ocean swell close to shore in the lee of the storm, their beaks into the wind. Between gaps in the dune I catch glimpses of the dark tundra, swept by wind and snow. My thoughts leap ahead to the cabin, to something warm to drink, and then return. I watch the ducks as I walk. Watching animals always slows you down. I think of the months explorers spent locked up in the ice here, some of them trapped in their ships for three or four years. Their prospects for an early departure were never good, but, their journals reveal, they rarely remarked on the animals that came around, beyond their potential as food, as threats or nuisances. These were men far from home, who felt helpless; the landscape hardly registered as they waited, except as an obstacle. Our inattentiveness is of a different order. We insist on living today in much shorter spans of time. We become exasperated when the lives of animals unfold in ways inconvenient to our schedules—when they sit and do "nothing." I search both the featureless tundra to my left and the raft of brown sea ducks to my right for something untoward, something that stands out. Nothing. After hours of walking, the tundra and the ducks recede into the storm, and my mind pulls far back into its own light.

A Lakota woman named Elaine Jahner once wrote that what lies at the heart of the religion of hunting peoples is the notion that a spiritual landscape exists within the physical landscape. To put it

another way, occasionally one sees something fleeting in the land, a moment when line, color, and movement intensify and something sacred is revealed, leading one to believe that there is another realm of reality corresponding to the physical one but different.

In the face of a rational, scientific approach to the land, which is more widely sanctioned, esoteric insights and speculations are frequently overshadowed, and what is lost is profound. The land is like poetry: it is inexplicably coherent, it is transcendent in its meaning, and it has the power to elevate a consideration of human life.

The cabin emerges silently up ahead in the blowing snow as the storm closes in. It seems to rest within a white cave or at the far end of a canyon. Sound only comes now from what is immediately around me. The distant voices of birds are gone. I hear the gritty step of my boots in the sand. Splash of wavelets on the beach. Wind rushing over the cones of my ears.

Through a window yellow with light I see a friend at a table, whipping the end of a boat line with waxed thread. I will have hot tea and lie in my bunk, and try to recall what I saw that did not, in those moments, come to mind.

IN the 1930s a man named Benjamin Lee Whorf began to clarify an insight he had had into the structure of the Hopi language. Hopi has only limited tenses, noted Whorf, makes no reference to time as an entity distinct from space, and, though relatively poor in nouns, is rich in verbs. It is a language that projects a world of movement and changing relationships, a continuous "fabric" of time and space. It is better suited than the English language to describing quantum mechanics. English divides time into linear segments by making use of many tenses. It is a noun-rich, verb-poor tongue that contrasts fixed space with a flow of time. It is a language of static space, more suited, say, to architectural description. All else being equal, a Hopi child would have little difficulty comprehending the theory of relativity in his own language, while an American child could more easily master history. A Hopi would be con-

founded by the idea that time flowed from the past into the present.

In 1936 Whorf wrote that many aboriginal languages "abound in finely wrought, beautifully logical discriminations about causation, action, result, dynamic and energetic quality, directness of experience, etc. . . ." He made people see that there were no primitive languages; and that there was no pool of thought from which all cultures drew their metaphysics. "All observers," he cautioned, "are not led by the same physical evidence to the same picture of the universe."

These ideas were anticipated to some extent by the anthropologist Franz Boas, who emphasized the individual integrity of different aboriginal cultures. His was a reaction against the predominant Victorian view that considered all cultures reducible to a set of "true" observations about the world. (Boas's "functionalist" approach has since been replaced by a "structuralist" view, which knowingly imposes abstract and subjective patterns on a culture.)

Whorf, Boas, and others in this tradition urged people after the turn of the century to see human culture as a mechanism for ordering reality. These realities were separate, though they might be simultaneously projected onto the same landscape. And there was no ultimate reality—any culture that would judge the perceptions of another, particularly one outside its own traditions, should proceed cautiously.

In recent years the writing of people like Joseph Campbell and Claude Lévi-Strauss has illuminated the great panorama of human perceptual experience, pointing up not only the different approaches we take to the background that contains us (the landscape) but the similarities we seem to share. For hunting peoples, for example, says Lévi-Strauss, an animal is held in high totemic regard not merely because it is food and therefore good to eat but because it is "good to think." The animal is "good to imagine."

In the Arctic, researchers such as Richard Nelson, Edmund Carpenter, and Hugh Brody, each addressing a different aspect of Eskimo existence, have reiterated these themes in studying the land. Their work has made clear the integrity and coherence of a differ-

ent vision of the Arctic; misunderstandings that arise when a view of reality similar to our own is assumed to exist; and the ways in which the Eskimo's view of the land presents us with growing ethical, political, and economic problems, because we would prefer that ours was the mind of record in that landscape.

I have already referred to Nelson's work on natural history and hunting. Brody has been influential in the development of land-use-and-occupancy studies. Carpenter has written cogently on Eskimo art and Eskimo perceptions of space. Not surprisingly, each has emphasized that a knowledge of the language, the pertinent regional dialect, is critical to an understanding of what Eskimos are talking about when they talk about the land. Says Nelson, an understanding of the behavior of sea ice off the coast at Wainwright, where the ice is very active, is "difficult to acquire, especially without a full understanding" of Eskimo terminology. Brody, discussing Eskimo concepts of intimacy with the land, says, flatly, "The key terms are not translatable."

Carpenter discerns a correspondence between the Inuktitut language and Eskimo carving: the emphasis in both is on what is dynamic, and on observations made from a variety of viewpoints. In our language, says Carpenter, we lavish attention on concepts of time; Eskimos give their attention to varieties of space. We assume all human beings are oriented similarly in space and therefore regard objects from the same point of view—the top is the top, the bottom the bottom; that direction is north and this south. In describing a distant place, however, says Carpenter, an Eskimo will often make no reference to the mass of the land in between (which would impress us, and which we would describe in terms of distance), but only to geographical points, and not necessarily as seen from the point of one's approach. Thus, to a non-Eskimo observer, the Eskimo might seem to have "no sense of direction." And because he travels somewhat like the arctic fox—turning aside to investigate something unusual, or moving ahead in a series of steps punctuated by short stops for tea, instead of in a straight, relentless dash for a "goal"—the Eskimo might be thought poorly self-

disciplined or improvident. But it would only have to do with how the Eskimo saw himself in the fabric of space and time, how he conceived of "proceeding" through the world, where he placed lines or points in the stream of duration.

The Eskimo's different but still sophisticated mind is largely inaccessible without recourse to his language. And, of course, it works the other way around. Each for the other is a kind of primitive.

The Eskimo language reaches its apogee in describing the land and man's activity in it. Young people in modern Eskimo villages, especially in the eastern Arctic, say that when they are out on the land with their parents, they find it much more difficult to speak Inuktitut, though they speak it at home all the time. It is not so much a lack of vocabulary as a difficulty with constructions, with idioms, a lost fluency that confuses them. It is out on the land, in the hunting camps and traveling over the ice, that the language comes alive.* The Eskimo language is seasonal—terms for the many varieties of snow emerge in winter, while those for whaling come into use in the spring. Whole areas of the language are starting to disappear because they refer to activities no longer much practiced, like traveling with dogs; or to the many different parts of an animal like the walrus that are no longer either eaten or used; or to activities that are discouraged, such as the intercession of shamans.

For Whorf, language was something man created in his mind and projected onto reality, something he imposed on the landscape, as though the land were a receptacle for his imagination. I think there are possibly two things wrong with this thought. First, the landscape is not inert; and it is precisely because it is alive that it eventually contradicts the imposition of a reality that does not

* So do some people. It is relatively common in the Arctic to meet a person in a village who seems clumsy, irresponsible, lethargic, barely capable of taking care of himself—and then to find the same person in the bush astoundingly skilled, energetic, and perspicacious.

derive from it. Second, language is not something man imposes on the land. It evolves in his conversation with the land—in testing the sea ice with the toe of a *kamik,* in the eating of a wild berry, in repairing a sled by the light of a seal-oil lamp. A long-lived inquiry produces a discriminating language. The very order of the language, the ecology of its sounds and thoughts, derives from the mind's intercourse with the landscape. To learn the indigenous language, then, is to know what the speakers of the language have made of the land.

THE American geographer Yi-Fu Tuan distinguishes in his writing between concepts of space and a sense of place. Human beings, he says, set out from places, where they feel a sense of attachment, of shelter, and comprehension, and journey into amorphous spaces, characterized by a feeling of freedom or adventure, and the unknown. "In open space," writes Tuan, "one can become intensely aware of fa remembered] place; and in the solitude of a sheltered place, the vastness of space acquires a haunting presence." We turn these exhilarating and sometimes terrifying new places into geography by extending the boundaries of our old places in an effort to include them. We pursue a desire for equilibrium and harmony between our familiar places and unknown spaces. We do this to make the foreign comprehensible, or simply more acceptable.

Tuan's thoughts are valid whether one is thinking about entering an unused room in a large house or of a sojourn in the Arctic. What stands out in the latter instance, and seems always part of travel in a wild landscape, is the long struggle of the mind for concordance with that mysterious entity, the earth.

One more thought from Tuan: a culture's most cherished places are not necessarily visible to the eye—spots on the land one can point to. They are made visible in drama—in narrative, song, and performance. It is precisely what is *invisible* in the land, however, that makes what is merely empty space to one person a *place* to another. The feeling that a particular place is suffused with memories, the specific focus of sacred and profane stories, and that

the whole landscape is a congeries of such places, is what is meant by a local sense of the land. The observation that it is merely space which requires definition before it has meaning—political demarcation, an assignment of its ownership, or industrial development—betrays a colonial sensibility.

It is easy to underestimate the power of a long-term association with the land, not just with a specific spot but with the span of it in memory and imagination, how it fills, for example, one's dreams. For some people, what they are is not finished at the skin, but continues with the reach of the senses out into the land. If the land is summarily disfigured or reorganized, it causes them psychological pain. Again, such people are attached to the land as if by luminous fibers; and they live in a kind of time that is not of the moment but, in concert with memory, extensive, measured by a lifetime. To cut these fibers causes not only pain but a sense of dislocation.

The expansion of nations into lands beyond their borders, and the rearrangement of these lands, conceptually and in real terms, to serve the expanding nation's ends, are among the most perplexing political problems of our time. A traveler often differs from a nation-state, however, in wishing to disturb nothing in the land beyond his borders, but only to visit and somehow arrive, through the inevitable contrasts, at a renewed sense of the worth of his own place, of the esteem in which he wishes to hold the landscape that originally shaped him.

In setting out, however, the traveler immediately confronts the problem of the map, an organization of the land according to a certain sense of space and an evaluation of what is important. I traveled everywhere with maps, no one of which was ever entirely accurate. They were the projection of a wish that the space could be this well organized. You cannot blame the maps, of course; nor can you travel without them. I was glad to pull them out of a pack or a back pocket and find clarification. I have leaned over the navigator's shoulder in a C-130 to get a better idea of where we were going and where at that moment we were. I have drawn

maps in a notebook to explain to someone where I had been, to see if he could corroborate or amplify what I had seen. I knew that mixture of satisfaction and desire—to know exactly how one is situated in the vastness; and that wish to fully comprehend the space a map renders and sets borders to. But I would try to be wary. Even a good map, one with the lines and symbols of a hand-written geography on it, where Tuan's "spaces" have been turned into "places," masquerades as an authority. What we hold in our hands are but approximations of what is out there. Neatly folded simulacra.

The perspective of most maps of the land, to begin with, is an abstraction, because it represents what the moving eye, not the stationary eye, sees in an overview. The map is two-dimensional, while the earth is three-dimensional and curved in two planes; neither the renderings nor the projections are ever quite accurate, and if the scale is large, the distortion can be extreme. (The most familiar sort of world map, the Mercator projection, in which the Arctic looms larger than all the Russias, and Greenland is almost the size of North America, is a distortion that takes a long while and some thought to unlearn.) Maps organize space mathematically. They set down outlines over various kinds of coordinates and use a distribution of names to make an abstraction—sometimes beautiful or astonishing—of what is real. The orderliness, simplicity, and clarity of the presentation, of course, is often seductive.

The variety of Arctic maps is enormous, and the information they provide is astonishing. If you could sit in a room with them undisturbed and digest the information they represent, you would become an Arctic Marco Polo. Beyond the predictable high-resolution, satellite- and U-2-generated, computer-enhanced assembly of physiographic maps, there are ones that show the migration routes of caribou with ten years of acetate overlays; the cobweb of electronic surveillance at sensitive military points such as northern Bering Sea; daily updates of ice coverage in summer shipping lanes, sent electronically and rendered on Thermofax paper; and maps that require much pondering, with isotherms

(temperature gradients), isograms (magnetic gradients), and isanthers (time gradients for the blooming of flowers). And maps of archaeological sites, polar bear denning sites, and the distribution of sources of gravel in the Arctic*

Of them all, the one I carry in my mind most prominently is a polar projection, a physiographic map with the Arctic Ocean centrally located. The northern reaches of Eurasia and North America and the whole of Greenland form a perimeter. The narrow entrance to the ocean between Greenland and Svalbard stands out because the deep waters there are a darker shade of blue than those over the continental shelf. (Here is the only place a deep current can move in and out of the Polar Basin.) And all the obscure places —the New Siberian Islands, the Kara Sea, Franz Josef Land, places banished to regions of distortion in the Mercator projection—are accorded their proper proportions.

When I look at this map on my wall, I am reminded of the geographical continuity of the region, which is unique—no matter how far east or west you go, you are still there. I can see how much shorter the route from Rotterdam to Yokohama is via Bering Strait than through the Panama Canal. And there is a fetching remoteness to northern Greenland when the island is seen in its entirety, not distorted or truncated. And I can put my fingers on wild Ellesmere, with its Agassiz Ice Cap and exotic plateaus, a daydreamed landscape of my youth. The Baffin Island Eskimos call it *ooming-mannuna,* where the muskoxen have their country.

THE earliest maps of the Arctic reflected the skills and conceptions (and misconceptions) of the cultures that produced them. Long before it became a field science, cartography was a contemplative pursuit; cartographers drew fabled landscapes and imaginary lands

* Gravel deposits are second only to hydrocarbon (gas and oil) deposits in their importance to arctic villages. Vast quantities of gravel are needed to prepare airstrips and construction pads because of the difficulty of building over permafrost.

of their own divining. The Arctic they depicted was a dark, mountainous, icy region of "brutes with neither language nor reason [who] hiss like geese"; or, alternately, an idyllic place of perpetual sunshine and warm seas. Either Asgard, the Norse citadel of zephyrs, brilliant light, and reigning power; or Niflheim, a cold wasteland of unending darkness hung with the stench of death.

The discovery of Svalbard by Dutch whalers in the sixteenth century and explorations north and west toward Novaya Zemlya by Willoughby and Chancellor (1553), and Barents (1596), and to the west by Frobisher (1576-1578), Davis (1585-1587), Hudson (1607-1610), and Baffin (1616), brought the Arctic to a more empirical definition. In succeeding centuries, it was discovered, piece by piece, beneath the ice and snow. Its lands were mapped and its waters charted. The final break with an Old World image of the Arctic was made when a Norwegian ship called the *From* completed a spectacular circumarctic voyage (1893-1896). Robert Peary proclaimed Greenland an island in 1892. In 1915-1917 Stefansson discovered the last, large pieces of land in the Far North. The coastline of the Canadian Archipelago was extensively redrawn during and immediately after World War II, as a result of military reconnaissance, and the last large islands in the south were discovered, in Foxe Basin west of Baffin Island (including Air Force Island, approximately 500 miles square).

Part of the allure of the Arctic has always been the very imprecision of its borders. The flat topography of the land becomes part of the frozen sea in winter. In summer, in some regions, low-lying land extends so far into shallow seas it is hard to tell them apart. It is easy to imagine that small bits of land might still lie hidden—and this indeed recently proved true in a dramatic way. In 1968, geographers finally determined mathematically that a small island called Kaffeklubben, which Peary had discovered in 1900, not Cape Morris Jesup, Greenland, was the northernmost point of land. In 1978, however, a tiny new island was discovered in the ice, 1500 yards north of Kaffeklubben. It was named

Oodaaq for a Polar Eskimo who accompanied Peary on his 1909 trip to the Pole.*

In time, then—and more sophisticated satellite-mapping technology continues to improve the accuracy of arctic maps—the lands that were imagined to exist in the Arctic were slowly replaced on the maps by the outlines of the lands that were actually found to be there. "Frobussher's Straights," which cut across northern Canada from the Atlantic to the Western Ocean in George Best's 1587 map; the Open Polar Sea, which Henry Hudson confidently sailed for in 1607; and the land bridge from Norway to Svalbard—all these misconceptions faded from the maps.

Many of the old maps of the Arctic, with their fabled islands, were only expressions of a wish for something better, for an easing of human travail—to find the Blessed Isles of the West, or a route to the Moluccas, the "Spice Islands," free of Spanish ships or Turkish middlemen. One folds such maps and puts them gently back in the drawer, out of a certain regard for human history, the long reach of human desire, and a search for contentment that goes beyond the borders of one's homeland.

To set these maps aside makes the colonial tragedies they record no less tragic; the admonition against imperious delusions no less sharp; and evidence of the real landscape no less insubstantial. Another age will surely find us as headstrong and avaricious as our exploring ancestors, and our plans as disrespectful and unwise

* Oodaaq was born in 1878 or 1879 and lived until the mid-1950s. He assisted a number of explorers and scientists, most of whom introduced different spellings of his name into the historical records—Ootah (Peary), Odârk (Mylius Erichsen), Odaq (Rasmussen), and Ctâq (Jean Malaurie). Oodaaq Island was discovered on July 26, 1978, by Uffe Petersen during a Danish Geodetic Institute survey of regional topography in northern Greenland. "It is a rather small [patch of gravel]," a colleague of Petersen wrote me, "only 30 m (98.4 feet) in diameter and less than 1 m (3.28 feet) over sea level at its highest point. Its position is 83°4o'32.5i"N 3o°4o'io.i2"W."

as some of these earlier schemes for prosperity seem to us now. Perhaps they will be forgiving as well.

WE have come to think of the Arctic as vast because in the familiar Mercator projection it stretches from one side of the world to the other. The suggestion that the region never comes together, however, that its various sections are "a world apart," is false. The region turns in on itself like any nation. It is organized like Australia, around an inland desert sea, with most of its people living on the coastal periphery. It is not vast like the Pacific. It is vast like the steppes of Asia. It has the heft, say, of China, but with the population of Seattle.

The Arctic's geographical unity derives from the sameness of its climate and seasons of light, and the similarity of its animal populations east and west—polar bear, bowhead whale, arctic fox, ringed seal, snowy owl. There are relatively few localized arctic species, such as the narwhal; and very few circumpolar animals show any subspecific differences (the walrus is one).*

To a modern traveler the arctic landscape can seem numbingly monotonous, but this impression is gained largely, I think, from staring at empty maps of the region and from traveling around in it by airplane. The airplane, like the map, creates a false sense of space; it achieves simplicity and compression, however, not with an enforced perspective but by altering the relationship between space and time. The interior of a plane is artificially lit, protected from weather, full of rarefied air cut with the odor of petroleum

* Further enhancing a sense of the region's natural homogeneity is the fact that the native people of half the Arctic, from Bering Strait to northern Greenland, speak nearly the same language. A linguistic continuity like this is not known anywhere else in the world. The mutual intelligibility of Eskimo dialects has facilitated the formation of a political body, the Inuit Circumpolar Conference, which now assists Alaskan, Canadian, and Greenlandic Eskimos in the settlement of land claims and in their pursuit of self-determination.

distillates and tobacco, and far noisier than the ground below. Many who fly in arctic aircraft, often crowded together with sled dogs and boxes of freight, incur slight headaches, and many experience some sort of spatial or temporal disorientation. Stories of government officials and reporters who arrive in northern villages by jet from somewhere in southern Canada, hear little of what is spoken to them, and insist on departing the very same day, are legion. Their haste, their cool insensitivity and aura of power seem, somehow, a part of the aircraft. The great compression of time and space the plane effects is without parallel in the northern villages. The knowledge of the land that such people carry home, therefore, is often false, and their summaries are bitterly resented.

The plane is a great temptation; but to learn anything of the land, to have any sense of the relevancy of the pertinent maps, you must walk away from the planes. You must get off into the country and sleep on the ground, or take an afternoon to take a tussock apart. Travel on the schedule of muskoxen. Camp on a seaward point and watch migrating sea ducks in their days of passage. You need to stand before the green, serpentine walls of the Jade Mountains north of the Kobuk River, or walk out over the sea ice to the flaw lead in winter to hear the pack ice grinding and scraping, a noise like "the whining of puppies and swarming of bees," in the words of the American explorer Elisha Kent Kane. In the stomach of a walrus butchered on the spring ice you will find the sediment of the ocean floor. Slowly comes the realization that 250,000 walrus in the Bering and Chukchi seas are moving tons of sand and fine gravel around, every day. You will think of lemmings and voles turning over thousands of tons of soil on the tundra. And of the Thule, who carried large stones into their camps and set them up in a pattern for a jumping game, like hopscotch. Of the huge stone polar bear traps the Thule built with their sliding stone doors. Residents, moving stones about.

When you have walked for days under the enormous sky; when you have felt the remoteness of the world from the Thomsen

River country of Banks Island; felt the unquenchable exuberance of sled dogs cracking off the frozen miles down a river valley; or been shown how some very small thing, like a Lapland longspur eating the lemming's bones for calcium, keeps the country alive, you begin to sense the timeless, unsummarized dimensions of a deeper landscape.

But you must insist on time to walk away from the plane, which daily enters and leaves the Arctic like some sort of bullet.

Christian Vibe told me a story. He was in northern Greenland, coming and going by dog sledge from the small village of Uummannaq (Thule) on Hayes Peninsula. In the spring of 1940 he was traveling along the east coast of Ellesmere Island, living on supplies he had cached there months before. An Eskimo friend of his from Uummannaq knew that Vibe was a Dane and that some information that had reached Uummannaq in May would be important to him. The man sledged across Smith Sound and found a cache where he knew Vibe would show up. He scratched this message in Eskimo syllabics on the side of a pemmican can:

> germans taking meat from denmark
> the king is **still** alive
> no gas left in shop.

The meaning was almost instantly clear to Vibe. Germany had gone to war with Denmark (i.e., "was taking her food"); the government of King Christian had not been deposed; and, because of the war, there would be no supplies coming by ship to Uummannaq in the spring. Vibe said he held the can in his gloved hands and looked around in the bright light, at his dogs and his few supplies, and knew he would not get home for a very long time.

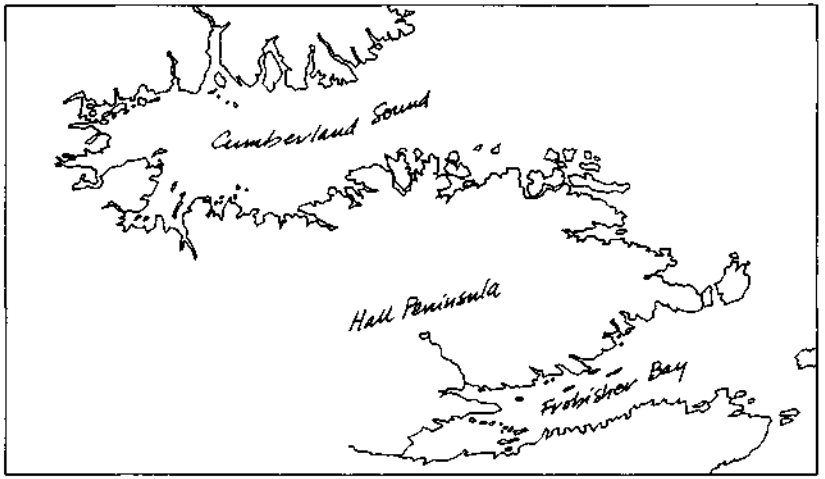
SOME early explorers took Eskimos and their knowledge of the land seriously and asked them to draw maps of the surrounding

country.* The Eskimos obliged. These maps were a great boon to arctic travel and exploration; today they offer an insight into the way Eskimos perceived the space around them.

A good knowledge of the local landscape and the ability to draw a detailed map are two very different cognitive skills. Nevertheless, many Eskimos, both men and women, produced highly accurate maps of the coastal and interior regions of their homeland. Robert M'Clure told his biographer in 1856 that the Eskimo of western Victoria Island drew expertly with pencil and paper "as if they were accustomed to hydrography." Another British naval officer marveled at a map created for him on the beach by Eskimos at Cape Prince of Wales in 1826, where stones, sticks, and pebbles were used "in a very ingenious and intelligible manner" to create a scaled replica of the region. Franz Boas reported Eskimos in the eastern Arctic drawing maps so fine he could recognize their every point in comparison with his own charts. "It is remarkable," wrote Boas, "that their ideas of the relative position and direction of coasts far distant from one another are so clear." The linear distances involved were as much as 1000 miles, and the areas represented as large as 150,000 square miles. Eskimos could also read European maps and charts of their home range with ease, in whatever orientation the maps were handed to them—upside down or sideways. And they had no problem switching from one scale to another or in maintaining a consistent scale in a map they drew.

Eskimos were making and using maps long before they met Europeans, both as mnemonic devices for ordering extensive sys-

* Mapmaking in the Arctic presented Europeans with several problems. The season for ship travel, to begin with, was very short, and during these summer months much of the coastline was either shrouded in fog or blocked by ice. Alternately, the same conditions that created mirages distorted the coasts and caused inconsistent readings when the ship tried to fix its own position. The sheer length of the coastline, and the barrenness and ruggedness of the land where survey parties had to put ashore, made this formidable task even more daunting.



Above, map of the Cumberland Sound-Frobisher Bay region, drawn from memory by an Eskimo named Sunapignanq. Below, map of the same area generated with modern cartographic techniques.

terns of place names and as navigational aids. Some of the latter were carved of wood—excellent for sea travel because they rendered coastlines in three dimensions (very useful in the eastern Arctic), were impervious to weather, and would float if dropped overboard.

Edmund Carpenter, with his particular interest in Eskimos' differing appreciation of the volume of space and their lack of a preferred orientation in it, has noticed that in maps of Southampton Island that the Aivilik prepared for him, the only distortions appeared in areas that were hunted very intensively. These regions were drawn larger than those visited less frequently. Contemporary Eskimo maps evince the same accuracy and richness, testifying to the continued maintenance of local geographic knowledge by those for whom this aspect of the culture is still alive, the astonishing degree to which the faculty of memory is cultivated among them, and their enduring penchant for long journeys over the land and sea ice. All this, despite their having moved into permanent settlements in most cases.

Traces of human presence in the land, like maps, organize undifferentiated space in certain ways, and the effect, especially in open country, is soothing. To come upon a series of Dorset campsites adds dimension and direction to the land; and one of course takes pleasure in the objects seen at these places. The same is true of a place where caribou for hundreds of years have crossed a river, or moved between mountains.

Distinctive landmarks that aid the traveler and control the vastness, as well as prominent marks on the land made inadvertently in the process of completing other tasks, are very much apparent in the Arctic. The most evocative are the *inuksuit* (stones piled up in the shape of human beings) that dot the eastern arctic landscape. They once funneled herds of caribou into depressions or rock corrals and marked lake shores at points where the fishing was good. One also finds stone fish dams and ptarmigan fences that date from Thule times. Rock cairns raised by early European explorers still stand out crisply in the landscape, on hills and headlands, and at

turns of the coastline; and they are still utilized by bush pilots and others as navigational aids.

More modern traces of man on the land, infinitely more prevalent, are not as charming. Canada's recently awakened sense of a northern destiny, for example, initiated a contemporary period of fervent cairn-building that proceeds unabated. Geological survey crews, oil-drilling crews, and various bureaucratic officials and dignitaries now routinely erect commemorative cairns. A simple cigar tube placed inside might contain a Polaroid print of mugging pals, or a more substantial metal case might hold a large color print of a government official and his family. (The diminishment of genuine exploration history suggested by these acts infuriates some northerners. They regard such cairn-building as pompous or silly, and dismantle the cairns whenever they come upon them.)

More irritating to the eye than these gratuitous monuments are the tens of thousands of miles of seismic trails generated in a continuing search for oil and gas, and the hundreds of thousands of empty aviation gas barrels scattered across the tundra at thousands of spike camps used by scientists, technicians, and, in recent years, by Eskimo hunters. As the science of seismic surveying improves, the same areas are surveyed all over again, and the system of trails left in the tundra by the cleat-footed tractor trains is extended. Vegetation does not grow back; the compressed soil does not rebound; spring rains do not wash the trails away. If anything, they occasionally grow worse. The exposed soil absorbs more sunlight, permafrost below begins to melt, and the tractorway begins to sink and separate, like a prairie gully in soil held together by no roots.

PULUWATAN natives in the Caroline Islands are famed for the accuracy with which they navigate on the high seas between distant archipelagos of the South Pacific. They align their boats with certain rising and setting stars, and note the presence at sea of particular species of birds, the salinity of the water, the set of currents, and the behavior of swell systems. Likewise, an Eskimo navigating in

polar darkness and white-outs and across featureless stretches of ice and snow makes full and efficient use of the few clues available to him. On shorefast ice in summer fog he travels between the voices of seabirds on landward cliffs and the sound of surf on the seaward edge of the ice. When he begins a journey over open terrain he marks the angle of the wind and checks his bearing periodically by glancing at the fur of his parka rim, at its alignment with the breeze. He bends down to feel the trend of sastrugi (ridges of hard snow that form in line with the prevailing wind) when he cannot see them in darkness or blowing snow. He notes the trend of any cracks in the ice as he crosses them. Sea ice cracks can reveal the presence of a cape or headland invisible in the distance, or they may confirm one's arrival at a known area, where the pattern of cracks is the same, year after year. The need to pay attention to the smallest clues is essential—a dark object on the ice could be a stone, revealing a hidden shoreline.

Constant attention to such details, memories of the way the land looks, and stories told by other travelers and hunters about the region are used together with the movements of animals, especially those of birds, and "sky maps" to keep the traveler on course.* Searching for such small but crucial clues, especially in the tremendous glare of light in spring (the traditional season for long journeys, because of the combination of good light and firm ice) or in the low-contrast conditions of winter, can be exhausting for a man who does not know what to ignore.

These navigational skills are still part of village life for some in the Arctic, used just as often today in traveling long distances

* A distant body of open water in the sea ice will often cast a dark shadow in the clouds above, producing a "water sky," while ice lying over the horizon often produces a soft white reflection in the air above it called "ice blink." The term "sky map" refers to either phenomena or to the pattern of light and dark they create together in the sky. A very discerning eye can distinguish among several sorts of ice blink. Snow-covered land appears yellowish white in the sky. Field ice is a lucid white, tinged with yellow. Pack ice is a pure white. Sea ice in embayments is a grayer white.

by snow machine as they were once by people traveling by dog sledge or on foot. And such skills still remain more critical for the success of a journey, especially over the sea ice, than even the best maps and navigation aids. Fogs and blizzards obscure the reference points important in navigation by topographic map—even compasses can't be consistently relied on here. The closer one gets to the magnetic pole, the stronger the vertical component and the weaker the horizontal component of this electromagnetic field become, causing the needle to wander listlessly, east and west of magnetic north. Corrections for compass declination at certain longitudes and latitudes are useless. Ionospheric disturbances, including magnetic storms and a phenomenon called "polar cap absorption," adversely affect radio direction-finding equipment. The frequency of temperature inversions in the summer makes it difficult to align a sextant on an undistorted horizon. And satellite-generated maps showing the extent of the sea ice, sent electronically to ships, are dated in twenty-four hours.

In the Arctic the sun does not rise reliably in the east and set in the west, and the farther north one goes, the fewer are the stars that rise and set. The summer moon is so dim that its presence is barely noticed. The most dependable sources of direction for most Eskimos, therefore, are the behavior of the wind and ocean currents, the consistent alignment of a flaw lead, and such things as the direction of flow of a river. You hardly ever hear someone say he is going to head "east" to hunt or visit or look around.

ONE September morning I traveled east (the way I envisioned it) with several friends in a small boat from our scientific base camp at Beaufort Lagoon, near the Canadian border. It was a balmy day, exhilarating weather after a week of cold wind and rain and overcast skies during which we had been working at sea. We were headed for the Yukon border, which had for all of us a romantic allure. We traveled about 25 miles along the coast before we were cut off in the shore lead by ice. Fortuitously, we were within a hundred yards of the border.

We doffed our parkas and wandered about the tundra somewhat aimlessly, in the vicinity of a cluster of weathered driftwood piles that marked the dividing line between the two countries. Caribou trails and the sight of migrating ducks and geese, the absence of immigration officials, and, not least, the sun shining brightly in a cloudless sky made us all take crossing the border less seriously. We found tufts of polar bear fur caught in the dry tundra grasses, and the tracks of a bear in the steep embankment, where it had descended the coastal bluff to the ice and headed out to sea.

In such benign circumstances it was hard to imagine the deadly tension that characterized other national borders on that same day. We were all of us more affected by an exotic childhood idea—reaching the Yukon Territory. We took our bearings from a country in our heads—it was an *idea* that brought us here, to a spot on the tundra we would be hard pressed to distinguish in terms of plant life or animal life or topography from the tundra a mile farther to the east, or back to the west. To come here at all was an act of carefree innocence. We stood around for nearly an hour. We took each other's pictures. We were delighted by the felicitous conjunction of this good weather and our idea of "the Yukon Territory."

Ideas no less real and far more affecting brought European explorers into the Arctic hundreds of years ago. They were searching for lands and straits they knew existed but which they had never seen; and they could not believe they did not exist when they failed to find them. As there was a Strait of Magellan at Cape Horn, they thought, so too should there be a northern strait, a Strait of Anian, just as there were Western and Eastern, Northern and Southern oceans. Did not the most learned references of the day, the sea charts, depict such a passage? And did it not make sense that Frobisher should find gold in the Arctic, just as the Spaniards had in the tropics?

When the early arctic explorers wrote down in official commentaries what they had seen, they were hesitant to criticize the

wisdom of the day, what the esteemed maps indicated. They were prone, in fact, to embellish, in order to make themselves seem more credible. They even believed on occasion that they *had* sensed something where there was nothing because it seemed ordained that it should happen—did not the eye glimpse faintly a shore before the fog closed in? Had not the ear recorded a distant surf before darkness and a contrary wind conspired against it? The land, they believed, should corroborate, not contradict, what men knew from sources like Ptolemy about the shape of the world. The accounts of such explorers were read and passed on; the entangled desires and observations of the writers, with a liberal interpretation by cartographers with reputations of their own to protect, perpetuated a geography of hoped-for islands and straits to the west of Europe that could not be substantiated, a geography only of the mind.

The influence of these images, of course, was considerable. Such a mental geography becomes the geography to which society adjusts, and it can be more influential than the real geography. The popular image of a previously unknown region, writes J. Wreford Watson, is "compounded of what men hope to find, what they look to find, how they set about finding, how findings are fitted into their existing framework of thought, and how those findings are then expressed." This, says Watson, is what is actually "found" in a new land.

Another geographer, John L. Allen, pondering the way we set off for a fresh landscape, writes, "When exploration is viewed as a process rather than as a series of distinct events, its major components [are seen to be] clearly related to the imagination. No exploratory adventure begins without objectives based on the imagined nature and content of the lands to be explored." The course of discovery is guided, then, by preconceived notions. Field observations, writes Allen, "are distorted by these images. The results of exploration are modified by reports written and interpreted in the light of persistent illusions and by attempts made to fit new information into partly erroneous systems and frameworks of geographical understanding."

Over the past twenty years, some of the focus of academic geography has shifted away from descriptions of the land and focused instead on landscapes that exist in the human mind. The extent and complexity of these geographical images, called mental maps, are wonderful. An urban resident, for example, sees himself situated in urban space with specific reference to certain stores, parking spaces, and public transportation stations. He assigns one street or building more importance than another as a place for chance meetings with friends. He knows which routes between certain points are safest and how to get to a certain restaurant even though he doesn't know the names of any of the streets on the way. The mental map of an Eskimo might be an overview of the region where he customarily hunts—where caribou are likely to turn up in the spring, where berries are to be found, where consistent runs of char are located, where the ground is too swampy to walk over in June, where good soapstone is to be had, or a regular supply of driftwood.

The mental maps of both urban dweller and Eskimo may correspond poorly in spatial terms with maps of the same areas prepared with survey tools and cartographic instruments. But they are proven, accurate guides of the landscape. They are living conceptions, idiosyncratically created, stripped of the superfluous, instantly adaptable. Their validity is not susceptible of contradiction.

Our overall cultural perception of a region requires another term. Mental maps are too personal; and the term does not convey sufficiently the richness of the invisible landscape, that component of a regional image that aboriginal groups dwell on at least as much as they consider a region's physiographic components. Jahner's term, the spiritual landscape, refers more specifically to relationships inherent in the physical landscape which make us aware of the presence of the forces and relationships that infuse our religious thought. If one can take the phrase "a country of the mind" to mean the landscape evident to the senses, as it is retained in human memory and arises in the oral tradition of a people, as a repository

of both mythological and "real-time" history, then perhaps this phrase will suffice.

Amos Rapoport, an Australian architect, and like Tuan and Carpenter curious about the meaning of "place," made a landmark study among Kurna, Arunda, Walbiri, and other Australian aborigines. He mapped their mythological landscapes. He understood that the stories that compose a tribe's mythological background, their origin and their meaning and purpose in the universe, are "unobservable realities" that find their expression in "observable phenomena." The land, in other words, makes the myth real. And it makes the people real.

The stories that unfold against the local landscape, and that give expression to the enduring relationships of life, said Rapoport, are as critical for people as food or water. The mythic landscape is not the natural landscape, Rapoport concluded, but the mythic and natural landscapes overlap at certain visible points in the land. And the limits of the local landscape, he emphasized, are not something that can be politically negotiated; they are fixed in mythology. They are not susceptible of adjustment. Rapoport's study made it eminently clear, as he put it, that Europeans may "completely misunderstand the nature of the landscape because of their point of view."

It is always somewhat risky to extrapolate from one aboriginal culture to another. I know of no work comparable to Rapoport's in the Arctic, however, and his observations come as close to being generically sound as any anthropologist's I know. The journals of the most attentive arctic explorers, those with both a flair for listening and a capacity to record metaphorical impressions without judgment, are filled with references to mythological events that occurred at particular places. Eskimos are not as land-conscious as aborigines; they are more sea-conscious, and the surface of the sea is impermanent, new every year. Still, the evidence for a landscape in the Arctic larger than the one science reports, more extensive than that recorded on the United States Coast and Geodetic Survey

quadrangle maps, is undeniable. It is the country the shamans shined their *qaumaneq,* their shaman light, into.

The aspiration of aboriginal people throughout the world has been to achieve a congruent relationship with the land, to fit well in it. To achieve occasionally a state of high harmony or reverberation. The dream of this transcendent congruency included the evolution of a hunting and gathering relationship with the earth, in which a mutual regard was understood to prevail; but it also meant a conservation of the stories that bind the people into the land.

I recall a scene in one of the British discovery expeditions to the Arctic of a group of ship's officers standing about somewhat idly on a beach while three or four Eskimo men drew a map for them in the sand. The young officers found the drawing exotic and engaging, but almost too developed, too theatrical. I can imagine the Eskimos drawing a map they meant not to be taken strictly as a navigational aid, but as a recapitulation of their place in the known universe. Therefore, as they placed a line of stones to represent a mountain range and drew in the trend of the coast, they included also small, seemingly insignificant bays where it was especially good to hunt geese, or tapped a section of a river where the special requirements for sheefish spawning were present. This was the map as mnemonic device, organizing the names of the places and the stories attached to them, three or four men unfolding their meaning and purpose as people before the young officers. They did not know what to leave out for these impatient men. There was no way for them to separate the stories, the indigenous philosophy, from the land. The young officers later remembered only that the maps were fascinating. Had the Eskimos told them that the Pentateuch was merely fascinating, they would have thought them daft.

The place-fixing stories that grew out of the land were of two kinds. The first kind, which was from the myth time and which occurred against the backdrop of a mythological landscape, was

usually meticulously conserved. (It was always possible that the storyteller would not himself or herself grasp completely the wisdom inherent in a story that had endured, which had proved its value repeatedly.)

The second kind of story included stories about traveling and what had happened to everyone in the years that could be recalled. It was at this place that my daughter was born; or this is where my brother-in-law killed two caribou the winter a bear killed all my dogs; or this, Titiralik, is the place my snow machine broke down and I had to walk; Seenasaluq, this is a place my family has camped since before I was born.

The undisturbed landscape verifies both sorts of story, and it is the constant recapitulation in sacred and profane contexts of all of these stories that keeps the people alive and the land alive in the people. Language, the stories, holds the vision together.

To those of us who are not hunters, who live in cities with no sharp regret and enjoy ideas few Eskimos would wish to discuss, such sensibilities may seem almost arcane. And we may put no value to them. But we cut ourselves off, I think, from a source of wisdom. We sometimes mistake a rude life for a rude mind; raw meat for barbarism; lack of conversation for lack of imagination. The overriding impression, I think, for the visitor in the Arctic who walks away from the plane, and waits out the bouts of binge drinking, the defensive surliness and self-conscious acting in the village, is that a wisdom is to be found in the people. And once in a great while an *isumataq* becomes apparent, a person who can create the atmosphere in which wisdom shows itself.

This is a timeless wisdom that survives failed human economies. It survives wars. It survives definition. It is a nameless wisdom esteemed by all people. It is understanding how to live a decent life, how to behave properly toward other people and toward the land.

It is, further, a wisdom not owned by anyone, nor about which one culture is more insightful or articulate. I could easily imagine some Thomas Merton-like person, the estimable rather than the famous people of our age, sitting with one or two Eskimo men and women in a coastal village, corroborating the existence of this human wisdom in yet another region of the world, and looking around to the mountains, the ice, the birds to see what makes it possible to put it into words.

ONE July evening I flew with two paleontologists from Ellef Ringnes Island some 400 miles southwest to their new camp near Castel Bay on Banks Island. In the years before, these two people had elucidated a wonderful bit of arctic history. A collection of fossils they assembled from a thick layer of interbedded coal and friable rock called the Eureka Formation on Ellesmere Island indicated that 40 to 50 million years ago, during the Eocene, the Arctic was a region forested with sequoias and ginkgo trees. It enjoyed a moist and temperate, almost warm climate and a collection of animals that showed a resemblance to the kinds of animals that have been discovered in Eocene deposits in Europe. At the time, the Eurasian and North American crustal plates were just beginning to separate at the northern end of the Atlantic Ocean, and animals had only recently ceased moving back and forth.

Robert West and Mary Dawson and I sat in the jump seats of an aircraft called a Twin Otter, amid their camp gear and fossil collections, for several hours. I listened to them explain their work, and took pleasure in it, in the fulfilled hopes and dashed dreams of a field season, and in some of the scenes they envisioned in the land below us during the Eocene, when three-toed horses, ancestral flying lemurs, and prehistoric crocodiles lived. It was not something they could see clearly, only imagine. They recounted their patient search through frost-riven rubble in the Arctic, looking for bits of mineralized bone, teeth, and shells, for pieces of petrified wood and casts of fallen leaves, the shreds of evidence that suggested a landscape.

It was a long flight. To be heard we had to shout a little over the sound of the engines or draw things on pieces of paper. Somewhere over Melville Island the pilot, Duncan Grant, turned around

in his seat to listen. The copilot flew on. Grant began to tell us about the history of arctic exploration, a subject upon which he was keen and knowledgeable. We were approaching Dealy Island on the south coast, where Kellett and his crew wintered in 1852 aboard HMS *Resolute.* He wanted us to see that, and, farther on, the winter quarters of Parry at the bay now called Winter Harbor.

As we crossed from Melville Island to Banks Island we looked down on massive pressure ridges, the jumbled, very heavy ice of M'Clure Strait. As we neared the coast, Grant, shouting, tried to get us to see what Pirn had seen as he approached Banks Island, when he made a dash from Dealy Island in the spring of 1853 to rescue M'Clure and the men aboard the *Investigator,* Even though it was July, a different cast of light entirely, you could see what Grant meant and how the event loomed for him as we approached. We all stopped talking. For the last half hour we just looked out the windows.

We flew over herds of muskoxen. The slanting light was so bucolic in its effect on the hillsides that they looked like herds of black angus grazing in English pastures. We crossed the mouth of the Thomsen River and then circled while West and Dawson surveyed the terrain and decided where to camp. Grant landed on a gravel ridge, where only a few plants were growing—a good exposure of the Eureka Formation. We unloaded their gear and then stood there, just looking around. It was a beautiful evening. We were all smiling with an unspoken hope that their work would be successful.

Dawson handed me a packet of letters they had written to their families and asked me to mail them when we got back to Resolute. We waved, a mixture of regret and good wishes at parting. I rode for hours with the letters on the seat beside me. I thought about the great desire among friends and colleagues and travelers who meet on the road, to share what they know, what they have seen and imagined. Not to have a shared understanding, but to share what one has come to understand. In such an atmosphere of mutual

regard, in which each can roll out his or her maps with no fear of contradiction, of suspicion, or theft, it is possible to imagine the long, graceful strides of human history.

I thought about it all the way back to Resolute, watching Melville Island and then Bathurst disappear beneath the clouds, as weather moved in from the west.