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ABOUT THE BOOK

Lopez's journey across our frozen planet is a celebration of the Arctic in all its guises. A hostile landscape of ice, freezing oceans and dazzling skyscapes. Home to millions of diverse animals and people. The stage to massive migrations by land, sea and air. The setting of epic exploratory voyages. And, in crystalline prose, Lopez captures the magic of the Arctic – the essential mystery and beauty of a continent that has enchanted man's imagination and ambition for centuries.

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ABOUT THE AUTHOR

Barry Lopez is the author of seven works of non-fiction and nine works of fiction. His writing appears regularly in *Harper's*, *The Paris Review*, *Orion*, and *The Georgia Review*. He is the recipient of a National Book Award, an Award in Literature from the American Academy of Arts and Letters, a Guggenheim Fellowship, and many other honours. Lopez lives in western Oregon.

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ALSO BY BARRY LOPEZ

Giving Birth to Thunder, Sleeping with His Daughter
Of Wolves and Men
Crossing Open Ground
The Rediscovery of North America
Lessons from the Wolverine
About This Life
Light Action in the Caribbean
Resistance
Outside

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For
Sandra

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Barry Lopez

ARCTIC DREAMS

WITH AN INTRODUCTION BY
Robert Macfarlane

VINTAGE BOOKS
London

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The landscape conveys an impression of absolute permanence. It is not hostile. It is simply there—untouched, silent and complete. It is very lonely, yet the absence of all human traces gives you the feeling you understand this land and can take your place in it.

EDMUND CARPENTER

Once in his life a man ought to concentrate his mind upon the remembered earth. He ought to give himself up to a particular landscape in his experience; to look at it from as many angles as he can, to wonder upon it, to dwell upon it.

He ought to imagine that he touches it with his hands at every season and listens to the sounds that are made upon it.

He ought to imagine the creatures there and all the faintest motions of the wind. He ought to recollect the glare of the moon and the colors of the dawn and dusk.

N. SCOTT MOMADAY

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INTRODUCTION

THOSE WHO HAVE travelled in high mountains will be familiar with the 'white-out': the point at which a blizzard reaches such intensity that it is impossible to distinguish between snowy land and snowy air. The world dissolves into a single, depthless tone. Perception is confounded. Orientation is difficult. Only verticality remains reliable.

Arctic white-outs are different. In the Arctic, a white-out occurs when there is not too little light, but too much. It happens, Barry Lopez explains, 'where light travelling in one direction at a certain angle has the same flux, or strength, as light travelling at any angle in any other direction'. The two light streams collide and abolish each other. 'There are no shadows. Space has no depth. There is no horizon. The bottom of the world disappears. On foot, you stumble about in missed-stair-step fashion.'

Lopez is, unmistakably, one of the most important living writers about landscape and our relations with it – and for Lopez the defining quality of a wild place is that it make us somehow 'stumble'. It removes a step from our stairs, and thereby draws attention to the 'narrow impetuosity' of human schedules. 'It is precisely because the regimes of light and time in the Arctic are so different,' he writes, 'that [it] is able to expose in startling ways the complacency of our thoughts about land in general.'

It is often suggested that we are drawn to wildernesses in order to be healed and consoled. For Lopez, wildernesses are neither therapeutic nor comforting. They are deceptive, and harshly tutelary. His masterpiece *Arctic Dreams*, first published in 1986, is filled with stories of people whose expectations are bewildered by the polar environment, sometimes fatally. A hunter – his perception of scale confused by the tundra's plainness – spends an hour stalking a grizzly which turns out to be a marmot. A polar bear grows wings and flies off as a party of men approaches: they have been tracking a snowy owl. Then there is the *fata morgana*, a mirage of ice and light which simulates a serrated mountainous coastline, and which sometimes cost the lives of nineteenth-century explorers who sailed towards it, hoping for landfall.

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Native American mythology deified this capacity of the landscape to mislead us as Raven – the trickster god. Lopez understands it chiefly as a function of physics, but he too reveres it for the challenges it poses to our systems of thought and modes of knowing.

Before writing *Arctic Dreams*, Lopez travelled for five years as a field biologist in the Canadian north. He passed through the diverse territories of the region: the orange and ochre badlands of Melville Island; the deep-cut canyons of the Hood River; Baffin Bay, where big bergs jostle slowly; and Pingok Island in the Beaufort Sea, where the tides are so slight that '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'. His sustained contact with these places, and the scrutiny of them required by his research work, brought him to a subtle understanding of the region. It also produced his austerely particular style as a writer. The Arctic, Lopez observes, has 'the classic lines of a desert landscape: spare, balanced, extended, and quiet' (one notes with admiration the adjectival balance – short-long-long-short – of that second phrase). The same is true of Lopez's prose. Of all the great modern landscape writers, his style seems most purely to enact the terrain it describes.

When he began to write about the Arctic, Lopez was faced with the problem of purchase. How could language grip a landscape that is so huge and 'monotonic'? How was he to depict a realm of immensities and repetitions: 'unrelieved stretches of snow and ice' and 'plains of open water'? How was he to bring this stark and enigmatic landscape within the reach of words, without trivialising or compromising it? High latitudes, like high altitudes, are regions to whose surfaces – stone, snow, ice, bright air – words will not easily stick.

What he came to understand was that detail anchors perception in a context of vastness. It is perhaps the defining habit of Lopez's style to make sudden shifts between the panoramic and the specific. Again and again, he evokes the reach and clarity of an Arctic vista – and then zooms in on the 'chitinous shell of an insect' lodged in a tuffet of grass, a glinting tracery of 'broken spider-webs', or 'the bones of a lemming' whose form resembles that of the 'strand of staghorn lichen next to them'. The effect for the reader of these abrupt perspectival jumps is exhilarating – as though Lopez has gripped you by the shoulder and pressed his binoculars to your eyes.

Indeed, as a biologist operating in remote territory, Lopez rarely travelled without a pair of field glasses looped around his neck. He gives us frequent glimpses of their importance to his vision: 'I raise my field glasses to draw it nearer,' he writes of a broad river valley on Banks Island. 'I bring my glasses up to study again the muskoxen,' he remarks, so they are 'clear even at a distance of two or three miles'. 'I settle myself in a crease in the tundra, out of the wind...and begin to study the far shore with the binoculars.'

What field glasses grant you in focus and reach, they deny you in periphery. To

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view an object through binoculars is to see it in crisp isolation, encircled by blackness – as though at the end of a tunnel. This isolating effect explains another of Lopez's signature effects: the single lucid image, gorgeous in its precision – caribou shaking themselves clean of river water in the evening sun such that 'a bloom of spray...glittered in the air around them like grains of mica', or a snow hare that rises up from its form in the tundra, 'smartly alert...as intent as if someone had whistled'.

Lopez's astonishingly observant style is born of binoculars; it is born also of the field biologist's other key technology – the notebook. The origin of his sentences as scribbled notes is clear in his verbless sentences and jabby syntax: 'The black bowhead with its white chin patches. Walrus on an ice floe. Leads in the spring ice'. Clear, too, in the dazzling immediacy of the book's presenttense passages, which feel as if they have been transferred without revision from life to journal to published page.

Given Lopez's scientific training, *Arctic Dreams* is surprisingly concerned with the limits of rationalism. True, its cargo of data is massive – you will find here explanations of the crystallography of frazil ice, or the thermodynamics of polar-bear hair, which are miracles of devout concision. But for Lopez, such information never solves or summarises the Arctic and its creatures; rather, it deepens their 'mystery' – a word he is refreshingly unafraid to use. Science finesses the real into greater marvellousness, while lacking total explanatory power. 'I became' – Lopez would later remember of his transition from 'scientist' to 'writer' during his Arctic years – 'one who travels and one who focuses, to be succinct, mostly on what logical positivists sweep aside'.

In 1997, the summer I turned twenty-one, I spent several weeks in northwest Canada, climbing in the Rockies and hiking the wilderness trails of the Pacific Rim. I was alone for long periods of time, with many hours to kill in tents, so I got through a lot of books. Whenever I came back to cities between trips, I would head for the nearest bookstore to re-stock. I was browsing shelves in Vancouver when I found a copy of *Arctic Dreams*. There were good reasons not to buy it. I had never heard of Lopez. Its subtitle – 'Imagination and Desire In A Northern Landscape' – struck me then as Mills and Boony. It was expensive for my budget. Above all it was heavy: almost 500 pages long and printed on thick paper. Because I had to carry everything I read, I'd taken to assessing my books according to a pemmican logic: maximum intellectual calorie content per ounce.

For some now-irretrievable reason I disregarded these objections, bought the book, and read it while I walked the Pacific Rim trail on the west coast of Vancouver Island, camping on surf-crashed beaches, and suspending my food from trees away from my tent in compliance with the bear-safety code. I read it then, and it amazed me. I read it again, lost my copy somewhere near Banff, bought another copy, gave it to my father as a present, borrowed it back off him, and read it again, and again,

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and again. I still have that copy (with a red-ink inscription from me to my father, dated 18 August 1997): the spine is cracked, the uppers ripped, the margins dense with annotations, and the pages are held together with sellotape, now brown.

Arctic Dreams changed the course of my life, for it turned me into a writer. Its combination of natural science, anthropology, cultural history, philosophy, reportage and lyrical observation revealed to me that non-fiction could be as experimental in form and beautiful in its language as any novel. Its thrillingly faceted style proved to me that prose lyricism was a function of precision – or what Robert Lowell called the 'grace of accuracy'. Its gyres outwards from the phenomenal to the philosophical showed me how to relate first-hand experience to broader questions of placeconsciousness. The other lesson Lopez taught me – though it would take me longer to understand it – was that while writing about landscape often begins in the aesthetic, it must always tend to the ethical. Lopez's intense attentiveness was, I came later to realise, a form of moral gaze, born of his belief that if we attend more closely to something then we are less likely to act selfishly towards it. To exercise a care of attention towards a place – as towards a person – is to achieve a sympathetic intimacy with it.

After returning from Canada I read more of Lopez's nonfiction – *Of Wolves and Men* (1978), his lapidary essay collections, *Crossing Open Ground* (1988) and *About This Life* (1998) – and to explore his fiction. It was under his powerful influence that I began work in 2000 on my first book, *Mountains of the Mind*, about our fascination for high country. I was teaching in Beijing at the time, living in a foreigners' block on the campus of a university. Every morning at 6am sharp an elderly Chinese man would perform his qigong exercises outside the window of my study-room, wielding a sword with a silver blade, from whose hilt whirled green silk tassles. On the bookshelf above the bare desk at which I wrote was an anthology of mountain-writing from Petrarch through to Mallory – and a copy of *Arctic Dreams*.

I was not, of course, the first to fall under Lopez's spell or to recognise his brilliance. In North America, Lopez is a canonical figure, held in respect tending to reverence by readers and critics. *Arctic Dreams* won the American Book Award, and stayed on the *New York Times* bestseller list for months. His writing is the subject of countless academic dissertations, book chapters and critical studies, and at the many universities where 'nature writing' is studied or practised, his books are syllabus staples.

Lopez himself is rightly uneasy about being labelled a 'nature writer', a term he uses only within the tweezers of inverted commas. It is a label that drastically limits his formal range as a writer (spanning essays, short stories, novels, and polemics, as well as the gloriously mixed mode of *Arctic Dreams*), and which disregards his work as an editor, lecturer, conservationist, photographer and humanitarian campaigner. It is more helpful to position him in terms of other writers with whom he shares values or craft: the transcendentalist trio of Emerson, Thoreau, Muir (a

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vision of wild landscape as spiritually edifying); the Melville of *Moby-Dick* (encyclopaedic fact-gathering); Rachel Carson and Loren Eiseley (the mingling of rhapsody and science); Willa Cather, John Steinbeck and William Faulkner (the assumption that the fates of humanity and nature are inseparable); Peter Matthiessen, Wendell Berry and Wallace Stegner (an explicitly dubious view of technological progress, even of capitalism); the poetry of W. S. Merwin, Amy Clampitt and Gary Snyder (crystalline lyric imagery); the essays of John McPhee and Joseph Mitchell (an elegant conscientiousness of reportage); and the political commitment both to beauty and to social justice of Rebecca Solnit. Any such positioning would also have to take account of his sustained engagement with the cultures and literatures of indigenous peoples, to whose thought Lopez has repeatedly turned in search of wisdom, and models of a human identity that exceed nationalism and material wealth. In common with all of these writers, Lopez sees landscape not as a static diorama against which human action occurs, but rather as an active and shaping force in our imagination, our ethics, and our relations with each other and with the world. To Lopez, geography is inextricable from morality.

Thus his repeated suggestion that certain landscapes are capable of bestowing a grace upon those who pass through them or live within them. The stern curve of a mountain slope, a nest of wet stones on a beach, the bent trunk of a wind-blown tree: such forms can call out in us a goodness we might not have known we possessed. 'In a winter-hammered landscape,' he writes, 'the light creates a feeling of compassion...it is possible to imagine a stifling ignorance falling away from us'. The Arctic is, to Lopez, especially powerful in this regard. It causes us – as Thoreau put it – 'to witness our own limits transgressed'. It induces humility in us. One of the qualities of the Arctic he most reveres is the clarity of its dustless and 'wind-washed' air, in which sunlight renders objects 'with... unusual sharpness'. He writes of the Arctic's 'perpetual light and unobstructed view' (recalling John Ruskin's delicate phrase about the 'endless perspicuity of space; the unfatigued veracity of eternal light'), and it is obvious that for Lopez this lucidity has a spiritual correspondence. In air of such 'depthless clarity' it is not only the 'country which stands revealed', but also the minds of those humans who move within it. In the Arctic, we see more clearly – out across the landscape, but also back into ourselves.

Lopez practises a topographic humanism, then; and he is a postmodern devout, secular in principle but drawn to mysticism. His prose – priestly, intense, grace-noted – carries the hushed insistence of the sermon, driven by the belief that 'it is possible to live wisely on the land, and to live well'. Irony and ambiguity are rarely part of his repertoire. His is an unshadowed style, 'transparent as a polished windowpane' as he puts it.

For some readers, it is all too much. Jonathan Raban – in his fine book of the Canadian north, *Passage to Juneau* – describes trying to read *Arctic Dreams* but setting it aside, feeling indicted. 'I found myself,' he wrote, 'an agnostic in his church;

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embarrassed, half-admiring, unable to genuflect in the right places...aching for more profane company'. Raban's reaction is understandable. But Lopez's sincerity is worth the price. The Arctic – for all its autonomy, its salutary wildness – has become damagingly bound into the schedules of late capitalism. *Arctic Dreams* was first published almost thirty years ago. Climate change is now causing Arctic summer sea ice to deplete at record rates, intensifying the steady decline in coverage that is conventionally dated back to 1979. The US Navy recently predicted that the Arctic would be ice-free by 2016. As the ice dissipates, so industry gears up. The Arctic is the new frontier for energy procurement. Gazprom is siting rigs above the Arctic Circle, and starting to drill. The Northwest Passage is open to container ships. The oil and gas extractive industries (on which we all depend) and global shipping (from which we all benefit) are moving north. The loss of the sea ice, and the consequent arrival of infrastructure, pose huge threats to the biodiversity about which Lopez writes with such rapt and inspiring wonder.

So it is that this magnificent book, composed as a celebration of the polar landscape, might well outlive its subject and become its elegy. Seen in this light, Lopez's graceful spiritualism – his drive to reconnect the cultural and the natural – looks less like piety and more like activism. As he has remarked elsewhere, the environmental predicament in which we now find ourselves 'calls on our collective imaginations with an urgency we've never known before. We are in need not just of another kind of logic, another way of knowing. We need a radically different philosophical sensibility'. Lopez's astonishing work advances that sensibility, and I am in awe of it.

Robert Macfarlane, 2014

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PREFACE

BEYOND A REGARD for the landscape itself, this book finds its origin in two moments.

One summer evening I was camped in the western Brooks Range of Alaska with a friend. From the ridge where we had pitched our tent we looked out over tens of square miles of rolling tundra along the southern edge of the calving grounds of the Western Arctic caribou herd. During those days we observed not only caribou and wolves, which we'd come to study, but wolverine and red fox, ground squirrels, delicate-legged whimbrels and aggressive jaegers, all in the unfoldings of their obscure lives. One night we watched in awe as a young grizzly bear tried repeatedly to force its way past a yearling wolf standing guard alone before a den of young pups. The bear eventually gave up and went on its way. We watched snowy owls and rough-legged hawks hunt and caribou drift like smoke through the valley.

On the evening I am thinking about—it was breezy there on Ilingnorak Ridge, and cold; but the late-night sun, small as a kite in the northern sky, poured forth an energy that burned against my cheekbones—it was on that evening that I went on a walk for the first time among the tundra birds. They all build their nests on the ground, so their vulnerability is extreme. I gazed down at a single horned lark no bigger than my fist. She stared back resolute as iron. As I approached, golden plovers abandoned their nests in hysterical ploys, artfully feigning a broken wing to distract me from the woven grass cups that couched their pale, darkly speckled eggs. Their eggs glowed with a soft, pure light, like the window light in a Vermeer painting. I marveled at this intense and concentrated beauty on the vast table of the plain. I walked on to find Lapland longspurs as still on their nests as stones, their dark eyes gleaming. At the nest of two snowy owls I stopped. These are more formidable animals than plovers. I stood motionless. The wild glare in their eyes receded. One owl settled back slowly over its three eggs, with an aura of primitive alertness. The other watched me, and immediately sought a bond with my eyes if I started to move.

I took to bowing on these evening walks. I would bow slightly with my hands in my pockets, toward the birds and the evidence of life in their nests—because of

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their fecundity, unexpected in this remote region, and because of the serene arctic light that came down over the land like breath, like breathing.

I remember the wild, dedicated lives of the birds that night and also the abandon with which a small herd of caribou crossed the Kokolik River to the northwest, the incident of only a few moments. They pranced through like wild mares, kicking up sheets of water across the evening sun and shaking it off on the far side like huge dogs, a bloom of spray that glittered in the air around them like grains of mica.

I remember the press of light against my face. The explosive skitter of calves among grazing caribou. And the warm intensity of the eggs beneath these resolute birds. Until then, perhaps because the sun was shining in the very middle of the night, so out of tune with my own customary perception, I had never known how benign sunlight could be. How forgiving. How run through with compassion in a land that bore so eloquently the evidence of centuries of winter.

During those summer days on Ilingnorak Ridge there was no dark night. Darkness never came. The birds were born. They flourished, and then flew south in the wake of the caribou.

The second incident is more fleeting. It occurred one night when I was being driven past a graveyard in Kalamazoo, Michigan. Among the gravestones was one marking the burial place of Edward Israel, a shy young man who sailed north in 1881 with Lieutenant Adolphus Greely. Greely and his men established a base camp on Ellesmere Island, 450 miles from the North Pole, and explored the surrounding territory in the spring of 1882. A planned relief expedition failed to reach them that summer, and also failed again the next year. Desperate, Greely's party of twenty-five retreated south, hopeful of being met by a rescue party in 1884. They wintered at Cape Sabine, Ellesmere Island, where sixteen of them died of starvation and scurvy, another committed suicide, and one man was executed for stealing food. Israel, the expedition's astronomer, died on May 27, 1884, three weeks before the others were rescued. The survivors remembered him as the most congenial person among them.

I remember looking out the back window of the car that evening and seeing Israel's grave in the falling light. What had this man hoped to find? What sort of place did he think lay out there before him on that bright June morning in 1881 when the *Proteus* slipped its moorings at Saint John's, Newfoundland?

No one is able to say, of course. He was drawn on by the fixations of his own imagination, as were John Davis and William Baffin before him and as Robert Peary and Vilhjalmur Stefansson would be after him. Perhaps he intended to make his mark as a scientist, to set his teeth in that high arctic landscape and come home like Darwin to a sedate and contemplative life, in the farmlands of southern Michigan. Perhaps he merely hungered after the unusual. We can only imagine that he desired something, the fulfillment of some personal and private dream, to which

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he pinned his life.

Israel was buried with great public feeling and patriotic rhetoric. His gravestone reads

IN LIFE A TRUE CHILD OF GOD

IN DEATH A HERO

These two incidents came back to me often in the four or five years that I traveled in the Arctic. The one, timeless and full of light, reminded me of sublime innocence, of the innate beauty of undisturbed relationships. The other, a dream gone awry, reminded me of the long human struggle, mental and physical, to come to terms with the Far North. As I traveled, I came to believe that people's desires and aspirations were as much a part of the land as the wind, solitary animals, and the bright fields of stone and tundra. And, too, that the land itself existed quite apart from these.

The physical landscape is baffling in its ability to transcend whatever we would make if it. It is as subtle in its expression as turns of the mind, and larger than our grasp; and yet it is still knowable. The mind, full of curiosity and analysis, disassembles a landscape and then reassembles the pieces—the nod of a flower, the color of the night sky, the murmur of an animal—trying to fathom its geography. At the same time the mind is trying to find its place within the land, to discover a way to dispel its own sense of estrangement.

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The particular section of the Arctic I became concerned with extends from Bering Strait in the west to Davis Strait in the east. It includes great, unrelieved stretches of snow and ice that in summer become plains of open water and an ocean that is the tundra, a tawny island beneath the sky. But there are, too, surprising and riveting sights: Wilberforce Falls on the Hood River suddenly tumbles 160 feet into a wild canyon in the midst of the Canadian tundra, and its roar can be heard for miles. Humboldt Glacier, a towering, 50-mile-long sea margin of the Greenland ice sheet, calves icebergs into Kane Basin with gargantuan and implacable force. The badlands of east-central Melville Island, an eroded country of desert oranges, of muted yellows and reds, reminds a traveler of canyons and arroyos in southern Utah. And there are places more exotic, like the Ruggles River, which flows out of Lake Hazen on Ellesmere Island in winter and runs 2000 feet through the Stygian darkness, wreathed in frost smoke, before it disappears underneath its own ice. South of Cape Bathurst and west of the Horton River in the Northwest Territories, bituminous shale fires that have been burning underground for hundreds of years make those coastal hills seem like a vast, smoldering heap of industrial slag. South of the central Kobuk River, one hundred foot dunes rise above hundreds of square miles of shifting sand. In East Greenland lies an arctic oasis called Queen Louisa Land, a valley of wild grasses and summer wildflowers surrounded by the walls of the Greenland ice cap.

The Arctic, overall, has the classic lines of a desert landscape: spare, balanced, extended, and quiet. In the Queen Elizabeth Islands the well-drained tundra plains and low-lying bogs more familiar in the south give way to expanses of weathered rock and gravel, and the illusion of a desert is even more complete. On Baffin and Ellesmere islands and in northern Alaska, sharply pitched arctic mountain ranges, which retain their remoteness even as you stand within them, complete a pervasive suggestion of austerity. The apparent monotony of the land is relieved, however, by weather systems moving through, and by the activities of animals, particularly of birds and caribou. And because so much of the country stands revealed, and because sunlight passing through the dustless air renders its edges with such unusual sharpness, animals linger before the eye. And their presence is vivid.

Like other landscapes that initially appear barren, arctic tundra can open suddenly, like the corolla of a flower, when any intimacy with it is sought. One begins to notice spots of brilliant red, orange, and green, for example, among the monotonic browns of a tundra tussock. A wolf spider lunges at a glistening beetle. A shred of muskox wool lies inert in the lavender blooms of a saxifrage. When Alwin Pederson, a Danish naturalist, first arrived on the northeast coast of Greenland, he wrote, "I must admit to strange feelings at the sight of this godforsaken desert of stone." Before he left, however, he was writing of muskoxen grazing in lush grass that grew higher than the animals' heads in Jameson Land, and of the stark beauty of nunataks, the ice-free spires of rock that pierce the Pleistocene stillness of the

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Greenland ice cap. I, like Pederson, when stooping to pick up the gracile rib bone of an arctic hare, would catch sudden and unexpected sight of the silken cocoon of an arctic caterpillar.

The wealth of biological detail on the tundra dispels any feeling that the land is empty; and its likeness to a stage suggests impending events. On a summer walk, the wind-washed air proves depthlessly clear. Time and again you come upon the isolated and succinct evidence of life—animal tracks, the undigested remains of a ptarmigan in an owl's casting, a patch of barren-ground willow nibbled nearly leafless by arctic hares. You are afforded the companionship of birds, which follow after you. (They know you are an animal; sooner or later you will turn up something to eat.) Sandpipers scatter before you, screaming *tuituek*, an Eskimo name for them. Coming awkwardly down a scree slope of frost-riven lime stone you make a glass-tinkling clatter—and at a distance a tundra grizzly rises on its hind legs to study you; the dish-shaped paws of its front legs deathly still, the stance so human it is unnerving.

Along creek washouts, in the western Arctic especially, you might stumble upon a mammoth tusk. Or in the eastern Arctic find undisturbed the ring of stones used by a hunter 1500 years ago to hold down the edge of his skin tent. These old Dorset camps, located along the coasts where arctic people have been traveling for four millennia, are poignant with their suggestion of the timeless determination of mankind. On rare occasions a traveler might come upon the more imposing stone foundations of a large house abandoned by Thule-culture people in the twelfth century. (The cold, dry arctic air might have preserved, even down to its odor, the remains of a ringed seal killed and eaten by them 800 years ago.) More often, one comes upon the remains of a twentieth-century camp, artifacts far less engaging than a scrap of worked caribou bone, or carved wood, or skewered hide at a Dorset or Thule site. But these artifacts disintegrate just as slowly—red tins of Prince Albert brand crimp-cut tobacco, cans of Pet evaporated milk and Log Cabin maple syrup. In the most recent camps one finds used flashlight batteries in clusters like animal droppings, and a bewildering variety of spent rifle and shotgun ammunition.

You raise your eyes from these remains, from whatever century, to look away. The land as far as you can see is rung with a harmonious authority, the enduring force of its natural history, of which these camps are so much a part. But the most recent evidence is vaguely disturbing. It does not derive in any clear way from the land. Its claim to being part of the natural history of the region seems, somehow, false.

It is hard to travel in the Arctic today and not be struck by the evidence of recent change. What is found at modern campsites along the coast points to the sudden arrival of a foreign technology—new tools and a new way of life for the local people.

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The initial adjustments to this were fairly simple; the rate of change, however, has continued to accelerate. Now the adjustments required are bewildering. And the new tools bring with them ever more complicated sets of beliefs. The native culture, from Saint Lawrence Island to Greenland, is today in a state of rapid economic reorganization and of internally disruptive social readjustment. In a recent article about the residents of Nunivak Island, for example, a scientist wrote that the dietary shift from wild to store-bought foods (with the many nutritional and social complications involved) is proceeding so quickly it is impossible to pin down. "By the time this paper appears in print," he wrote, "much of the information in it will be of historical value only."

Industrial changes have also come to the Arctic, following the discovery of oil at Prudhoe Bay, Alaska, in 1968: the 800-mile-long trans-Alaska pipeline itself, with its recent Kuparuk extension; base camps for oil exploration on Canada's Melville Island and Tuktoyaktuk Peninsula; huge lead-zinc mining operations on northern Baffin and Little Cornwallis islands; hundreds of miles of new roads; and increased ship, air, and truck traffic. The region's normally violent and unpredictable weather, its extreme cold and long periods of darkness, the great distance to supply depots, and the problem of stabilizing permanent structures over permafrost (which melts and shifts in erratic ways) have made the cost of these operations astronomical—indeed, in Canada they could not even be contemplated without massive assistance from the federal government.

Seen as widely separated dots and lines on a map, these recent, radical changes do not appear to amount to very much. But their rippling effect in the settlements and villages of the North—their economic, psychological, and social impact—is acute. And their success, though marginal and in some instances artificial, encourages additional schemes for development.[fn1] Of special concern to local residents is a growing concentration of power in the hands of people with enormous economic resources but a poorly developed geographic sense of the region. A man from Tuktoyaktuk, a village near the mouth of the Mackenzie River, told me a pointed story. In the 1950s he traveled regularly up and down the coast by dogsled. When a distant early warning (DEW) line radar station went up along his accustomed route, he decided to stop to see what it was. The military men welcomed him not as a resident of the region but as a figure of arctic fable. They enthusiastically fed his dogs a stack of raw steaks. Each time the man came, they pounded him on the back and fed his dogs piles of steak. Their largess seemed so odd and his rapport with them so unrealistic he stopped coming. For months afterward, however, he had tremendous difficulty controlling the dogs anytime they passed near the place.

Passing through the villages, even traveling across the uninhabited land, one cannot miss the evidence of upheaval, nor avoid being wrenched by it. The depression it engenders, because so much of it seems a heedless imposition on the

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land and on the people, a rude invasion, can lead one to despair. I brooded, like any traveler, over these things; but the presence of the land, the sheer weight of it before the senses, more often drew me away from the contemporary issues. What, I wondered, had compelled me to bow to a horned lark? How do people imagine the landscapes they find themselves in? How does the land shape the imaginations of the people who dwell in it? How does desire itself, the desire to comprehend, shape knowledge? These questions seemed to me to go deeper than the topical issues, to underlie any consideration of them.

In pursuit of answers I traveled with people of differing dispositions. With Eskimos hunting narwhals off northern Baffin Island and walruses in Bering Sea. With marine ecologists on hundreds of miles of coastal and near-shore surveys. With landscape painters in the Canadian Archipelago. In the company of roughnecks, drilling for oil on the winter ice in high winds at — 30°F; and with the cosmopolitan crew of a freighter, sailing up the west coast of Greenland and into the Northwest Passage. They each assessed the land differently—the apparent emptiness of the tundra, which ran out like a shimmering mirage in the Northern Ocean; the blue-black vault of the winter sky, a cold beauty alive with scintillating stars; a herd of muskoxen, pivoting together on a hilltop to make a defensive stand, their long guard hairs swirling around them like a single, huge wave of dark water; a vein of lead-zinc ore glinting like tiny mirrors in a damp, Mesozoic wall beneath the surface of Little Cornwallis Island; the moaning and wailing in the winter sea ice as the ocean's crust warped and shattered in the crystalline air. All of it, all that the land is and evokes, its actual meaning as well as its metaphorical reverberation, was and is understood differently.

These different views make a human future in that northern landscape a matter of conjecture, and it is here that one encounters dreams, projections of hope. The individual's dream, whether it be so private a wish as that the joyful determination of nesting arctic birds might infuse a distant friend weary of life, or a magnanimous wish, that a piece of scientific information wrested from the landscape might serve one's community—in individual dreams is the hope that one's own life will not have been lived for nothing. The very much larger dream, that of a people, is a story we have been carrying with us for millennia. It is a narrative of determination and hope that follows a question: What will we do as the wisdom of our past bears down on our future? It is a story of ageless conversation, not only conversation among ourselves about what we mean and wish to do, but a conversation held with the land—our contemplation and wonder at a prairie thunderstorm, or before the jagged line of a young mountain, or at the sudden rise of ducks from an isolated lake. We have been telling ourselves the story of what *we* represent in the land for 40,000 years. At the heart of this story, I think, is a simple, abiding belief: it is possible to live wisely on the land, and to live well. And in behaving respectfully toward all that the land contains, it is possible to imagine a stifling ignorance

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falling away from us.

Crossing the tree line to the Far North, one leaves behind the boreal owl clutching its frozen prey to its chest feathers to thaw it. Ahead lies an open, wild landscape, pointed off on the maps with arresting and anomalous names: Brother John Glacier and Cape White Handkerchief. Navy Board Inlet, Teddy Bear Island, and the Zebra Cliffs. Dexterity Fiord, Saint Patrick Canyon, Starvation Cove. Eskimos hunt the ringed seal, still, in the broad bays of the Sons of the Clergy and Royal Astronomical Society islands.

This is a land where airplanes track icebergs the size of Cleveland and polar bears fly down out of the stars. It is a region, like the desert, rich with metaphor, with adumbration. In a simple bow from the waist before the nest of the horned lark, you are able to stake your life, again, in what you dream.

fn1 For a summary of specific arctic problems, see note 1.

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PROLOGUE
Pond's Bay, Baffin Island

ON A WARM summer day in 1823, the *Cumbrian*, a 360-ton British whaler, sailed into the waters off Pond's Bay (now Pond Inlet), northern Baffin Island, after a short excursion to the north. The waters of Lancaster Sound, where she had been, were supposed to be a promising "new water," but the *Cumbrian* hadn't struck a whale in two weeks of cruising. Worse, in her captain's view, the forty-odd ships that had chosen instead to dally at the mouth of Pond's Bay had met with spectacular success in her absence. "Several ships," lamented Captain Johnson in his log, "had captured upwards of 12, one or two [ships] 15 apiece, and one had got full...."

But the *Cumbrian* did not have long to wait. The newly discovered waters of western Baffin Bay, the West Water, teemed with the men's special prey, the Greenland whale. On the very next day, July 28, they killed three. In the days that followed they took another twelve, for a total of twenty-three for the season. On August 20 the *Cumbrian* sailed for ice-free waters off the coast of Greenland and then doubled Cape Farewell for England. The whale blubber she carried would render 236 tons of oil to light the street lamps of Great Britain and process the coarse wool of its textile mills. Also in her hold were more than four and a half tons of whalebone (baleen), to be turned into umbrella staves and Venetian blinds, portable sheep pens, window gratings, and furniture springing.

The *Cumbrian* made port at Hull on September 26, to dockside cheers. Young boys from town swarmed her rigging in quest of the traditional garland of sun-bleached ribbons, halfway up the main-topgallant mast. The ship's owners beamed with pleasure. The year before the *Cumbrian* had taken but half this many whales, for no ship that year had been able to breach the ice in Davis Strait. And in 1821 the *Cumbrian* had returned with grim news—three ships from Hull, and at least four others from British ports, were lost, crushed in the ice.

The season of 1823 eased these awful memories. The West Water off Pond's Bay seemed most promising. And the *Cumbrian* had also brought back walrus hides and

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ivory, traded from the Eskimos of West Greenland and northern Baffin Island. And also several narwhal tusks. If the prices for oil and whalebone held, if there were a few good ice-years back to back, and if London didn't rescind the industry's price supports or abolish the protective trade tariffs....

None of this had been much on the minds of the men of the *Cumbrian*. In the West Water, they had worked the odd hours of men who knew no night, who jumped for the whaleboat davits whenever a "fish" was sighted. They slept sprawled on the decks and ate irregularly. Their days in the ice were heady, the weather splendid. The distant landscapes of Bylot and Baffin islands at Pond's Bay were etched brilliantly before them by a high-tempered light in air clear as gin—an unearthly sight that filled them with a mixture of disbelief and pleasure. They felt exhilaration in the constant light; and a sense of satisfaction and worth, which came partly from their arduous work.

The summer of 1823 marked a high point in the halcyon days of British arctic whaling, which followed the close of the Napoleonic Wars. The discovery of the West Water came at a time when the market for whale products was resurgent, and it made the merchants and investors of Hull and Peterhead, of Dundee and Aberdeen and Whitby, a rich bounty between 1818 and 1824. In 1825 it would begin to unravel—technological advances and British economic policy would weaken the home and foreign markets for oil and whalebone, and the too-frequent and expensive loss of uninsured ships would dry up investment capital. With 2000 whales killed in 1823 alone, overfishing, too, would begin to be a problem.

The object of all this attention was a creature the British had been hunting commercially for 212 years, first in the bays of Spitsbergen and in the loose pack ice of the Greenland Sea, then in the southern reaches of Davis Strait, and finally in the North Water and West Water of Baffin Bay. Long slats of blue-black, plankton-straining baleen hung from the roof of its mouth in a U-shaped curtain, some of the blades nearly 15 feet long. The stout body, with a massive head one-third the animal's length, was wrapped in blubber as much as 20 inches thick—a higher ratio of blubber to weight than that for any other whale. The blubber of a good-size animal might yield 25 tons of oil; its 300 or more baleen plates might mean more than a ton of whalebone. The 45-foot carcass—minus baleen and its flukes (taken to make glue) and flensed of its blubber—was cut adrift as a "crang" underneath ever-present, mobbing clouds of seabirds.

Because it was a slow swimmer, because it floated when it was killed, and because of the unusual quantity of bone and oil it yielded, it was the right whale to take—the Greenland right. The polar whale. *The* whale. Later, in the western Arctic, it would be called "bowhead," after the outline of its jaw.

The skin of this animal is slightly furrowed to the touch, like coarse-laid paper, and is a velvet-black color softened by gray. Under the chin and on the belly the skin turns white. Its dark brown eyes, the size of an ox's, are nearly lost in the huge

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of the time wrote summarily that the Eskimo was "dwindled in his form, his intellect, and his passions." They were people to be taken mild but harmless advantage of, to be chastised like children, but not to be taken seriously. The Europeans called them yaks.

As for the Eskimo, they thought the whalers strange for trying to get on without the skills and companionship of women. They gave them full credit for producing "valuable and convenient articles and implements," but laughed at their inability to clothe, feed, and protect themselves. They regarded the whalers with a mixture of *ilira* and *kappia*, the same emotions a visitor to the modern village of Pond Inlet encounters today. *Ilira* is the fear that accompanies awe; *kappia* is fear in the face of unpredictable violence. Watching a polar bear—*ilira*. Having to cross thin sea ice —*kappia*.

By the summer of 1832, after only a few years of commerce in the region, the whalers were already beginning to find the silent villages of spring—places where everyone had died during the winter of European diphtheria and smallpox. The apparently timeless Arctic, they saw, was in fact changeable. And the vast and particular knowledge of the Eskimo, garnered from hundreds of years of their patient interrogation of the landscape, was starting to slip away.

FAR to the northeast of Pond's Bay, west of Cape York on the Greenland coast, was a remarkable phenomenon whalers at the time called the Crimson Cliffs, red-tinged snow they variously explained as due to fungal growth or to the red mute of guillemots feeding on shrimp.[fn1] At an unknown spot to the east of those cliffs, a place the local Eskimos called Savissivik, was a collection of meteorites that the British heard about for the first time in 1818. (The Polar Eskimo chipped bits of iron-nickel from them for harpoon tips and knife blades, and for use in trade with other Eskimos. Among them *savik* meant both "knife" and "iron.") In 1823 even officers of the British whaling fleet had little idea where a meteorite might come from. They couldn't say, either, whether Greenland was actually an island. Nor at that time had anyone been within 500 miles of the North Pole. For all they knew, it was what Henry Hudson believed it was when he sailed for it in 1607, a massive boulder of black basalt sitting in the middle of a warm, calm sea. They were unaware that the Greenland right actually "sang," like the humpback whales they heard in the North Atlantic en route to the arctic fishery. The life history of the Greenland shark, an "unwholesome and lethargic brute" upon which the Danes would build Greenland's first commercial fishery (for the oil from its liver), was unknown to them. The existence of a culture that had preceded the Eskimo's in the Arctic was unsuspected, though they traded, unawares, for its artifacts.

In 1823 the North American Arctic was still as distant as fable, inhabited by remarkable animals and uncontacted peoples, the last undiscovered complex ecosystem on the planet. A landscape of numinous events, of a forgiving

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benediction of light, and a darkness so dunning it precipitated madness; of a cold that froze vinegar, that fractured whatever it penetrated, including the stones. It was uncharted, unclaimed territory, and Europeans had perished miserably in it since the time of the Norse—gangrenous with frostbite, poisoned by polar bear liver, rotted by scurvy, dead of exposure on the ice beside the wreckage of a ship burned to the water line for the last bit of its warmth.

The confidence and élan of the whalemen at Pond's Bay was tempered with this macabre knowledge; and they suspected that their own ignorance of the place, even the ignorance of those among them who made such erudite notes about the biology of whales or the colors of plankton in the current, was extensive. They were overcome, however, by neither fear nor ignorance. Their vessels, for the moment, were "safe as a life boat and tight as a bottle." In two months they would be home to their families, with a year's pay and perhaps a pair of polar bear trousers to show, or a flint-blade knife for a son. And with stories to hold a neighbor enthralled, stories of a breathtaking escape from drowning, or of having collected 6000 eider eggs on a coastal flat one morning. Or of sleeping with an Eskimo woman.

It is easy to imagine their sense of wild adventure, that on one of those July afternoons off Pond's Bay, on a Sunday when a strict Christian captain would permit no whaling, that the crew might be lounging on the sunlit decks comparing exotic arctic souvenirs: the perplexing skull of a muskox, with its massive horn bosses and protruding eye orbitals—"from a kind of polar cattle," as they understood it from the Eskimo, which lived way off to the west and the north. Or a bit of chain mail, which, someone argued, was certain proof that Viking explorers had sailed far north of the Greenland settlements, hundreds of years before. Or a small ivory carving of a human face, twisted in psychotic anguish, an artifact from the vanished Dorset culture. They likely felt a tension between the unfamiliar quality of these objects and the commonplaces of their own daily lives—the boot-worn deck on which they sat, or the intricate but familiar rigging of sails and spars overhead.

Perhaps someone recalled having seen a polar bear once, far offshore in a storm, swimming with measured strokes through great dark seas—and, with that, introduced yet another tension peculiar to the place, that between beauty and violence. Or perhaps they spoke of the Eskimos, how astonishing they were to be able to survive here, how energetic and friendly; and yet how unnerving with their primitive habits: a mother wiping away a child's feces with her hair, a man pinching the heart of a snared bird to kill it, so as not to ruin the feathers.

In their own separate, spare quarters, the ship's officers might have been reading William Scoresby's *Account of the Arctic Regions* or the recently published discovery narrative of William Parry, who had opened the way to the West Water in 1818 with John Ross. They admired Parry; overall, however, they viewed the British

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discovery expeditions—in ships that were ice-strengthened to a fare-thee-well, manned by inexperienced crews and commanded by officers seeking "imperishable renown"—as a pompous exercise in state politics, of little or no practical value.

Men and officers alike would have mused more on the blubber and bone below decks, for *that* was tangible wealth. These two parts of just a single whale would sell on the docks at Hull for ten to fifteen times what a man could expect to make in a year's work ashore.

The men on the decks, dozing in the sun on their day off, likely had no thought at all of how utterly devastating their way of life would prove to the Eskimo and the bowhead. They felt, instead, a sense of fortune. And they yearned for home.

THE Canadian historian W. Gillies Ross cautiously suggests that as many as 38,000 Greenland right whales may have been killed in the Davis Strait fishery, largely by the British fleet. A sound estimate of the size of that population today is 200. There are no similar figures for the number of native people in the region who fell to diphtheria, smallpox, tuberculosis, poliomyelitis, and other diseases—historians have suggested that 90 percent of the indigenous population of North America is not an unreasonable figure. The Eskimos are still trying, as it were, to recover.[fn2]

What happened around Pond's Bay in the heyday of arctic whaling represents in microcosm the large-scale advance of Western culture into the Arctic. It is a disquieting reminder that the modern industries—oil, gas, and mineral extraction—might be embarked on a course as disastrously short-lived as was that of the whaling industry. And as naive—our natural histories of this region 150 years later are still cursory and unintegrated. This time around, however, the element in the ecosystem at greatest risk is not the bowhead but the coherent vision of an indigenous people. We have no alternative, long-lived narrative to theirs, no story of human relationships with that landscape independent of Western science and any desire to control or possess. Our intimacy lacks historical depth, and is still largely innocent of what is obscure and subtle there.

And our conceptions of its ultimate value vary markedly. The future disposition of the Arctic is not viewed in the same way by a Montreal attorney working on the settlement of Inuit land claims and by a naval architect in Sweden designing an ice-breaking tanker capable of plying the polar route from Rotterdam to Yokahama. And the life history of the Arctic—the pollination of its flowers by the bumblebee, the origins and thoughts of the Dorset people, the habits of the wolverine—means one thing to an *inuk* pulling on his fishnets at the mouth of the Hayes River, another to a biologist watching a caribou herd encounter the trans-Alaska pipeline, and yet something else to the modern tourist, bound for a caviar-and-champagne luncheon at the North Pole.

Such a variety of human views and interests in an emerging land is not new; what is new for us, and troubling, is a difference in the land itself, which changes

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you would start to experience "night." Short nights, only prolonged periods of twilight really, at first. But slowly the twilight would start to deepen during the evening hours and to wax in the morning hours. Somewhere on the plains of Manitoba you would finally sense "the middle of the night"—enough of real darkness so you couldn't continue walking without fear of stumbling.

If you carried on, as you could if we held June 21 in suspension like this, you would begin to notice three things: the nights would get noticeably longer; the sun would stand higher and higher in the southern sky at noon (and more clearly seem to "rise in the east" and "set in the west"); and periods of twilight at dawn and dusk would shorten, until twilight would be only a passing phenomenon. The sun rises and sets sharply in Mexico City. Sunshine is a daily, not a seasonal, phenomenon, as it is in the North.

If you stood at the North Pole six months later, on December 21, the winter solstice, the middle of the polar night, you would not see a single star set—they would all pass before you from left to right. If they left behind the light-streak traces they do on time-exposed film, you would see the varicolored rings stacked one atop another, parallel to the horizon, shrinking in diameter, until the last ring, less than 2° across and traced by Polaris, circled the dark spot of empty space that lies over the North Pole.

If you walked south from the Pole on December 21, you would find the phenomena of six months earlier reversed. It would be utterly dark at the Pole on that day. On the plains of Manitoba the balance of day and night would feel right to you if you were familiar with the short days of winter in the Temperate Zone. In the tropics there would again be days and nights of equal length, with very little twilight.[fn4]

You would have to walk a very long way south on December 21, 1611 statute miles, all the way to the Arctic Circle, to actually set eyes on the sun. The winter darkness, however, would not be complete. Prolonged periods of twilight penetrate the long arctic night, and the strength of even scant illumination from the stars is enhanced all winter by the reflective surfaces of ice and snow. Too, there is no forest canopy to dim the land and, save in a few places, no night shadow of a mountain range to contend with. The Arctic is like the desert in this way—open, unobstructed country, lit well enough by a full moon to permit travel at night.

It makes little sense in more southerly latitudes to dwell on a consideration of twilight, but it is meaningful in the Arctic, where this soft light lingers for such long periods of time that astronomers distinguish several types.[fn5] In the Temperate Zone, periods of twilight are a daily phenomenon, morning and evening. In the Far North they are (also) a seasonal phenomenon, continuous through a day, day after day, as the sun wanes in the fall and waxes in the spring. In the Temperate Zone each day is noticeably shorter in winter and longer in summer but, still, each day has a discernible dawn, a protracted "first light" that suggests new beginnings. In

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and sea animals north and south over prolonged periods were tied to a lunar cycle of 18.6 years (the time it takes the moon to intersect the earth's orbit around the sun again at the same spot). Because the length of this lunar cycle is not a whole number, the maximum and minimum effect it has on the earth's tides (and therefore on ice formation and weather) can occur at different seasons of the year, in successive 18.6-year periods. This led Vibe to posit a primary period of 698 years for the Arctic's weather pattern, with secondary periods of 116.3 years, and what Vibe calls a basic "true ecological cycling period" of 11.6 years.

Depending upon your point of view, either Vibe's insights are ingenious and his mathematics elegant, or his system is impossibly broad and complicated and of little help in understanding arctic change. His inquiry might be considered an entirely esoteric and rarefied pursuit, in fact, if it were not for two things. In the Arctic one is constantly aware of sharp oscillation. It is as familiar a pattern of human thought and animal movement to the arctic resident as the pattern of four seasons is to a dweller in the Temperate Zone. In spite of the many manifestations of this rhythm, and the effect of sharp oscillation not only on resident animals but, probably, too, on the cultures that matured in these regions, Vibe's remains the only serious attempt at a description. Second, insofar as Vibe's theories explain oscillation in temperate-zone climate patterns or indicate harbingers of another ice age, they have a significant bearing on our developing patterns of commerce and economics, especially in the Arctic.

It is easy to say that the Arctic is characterized by sharp oscillation, just as it is to say that the airs of a temperate-zone spring are felicitous, but it is difficult to say precisely why. The basal annual rhythm of the North is winter/summer. The weeks during breakup and freeze-up are short, frequently perilous times, when strategies employed by both animals and human hunters to secure food are momentarily disrupted. The long winter and short summer constitute a temporal pattern around which life carefully arranges itself. Preparations for winter show up clearly everywhere in the land. The short-tailed weasel grows its white coat and the collared lemming its long snow claws. Tundra rodents shift from their night-active summer pattern to a day-active winter pattern, with but a few days of irregular rhythm in between. The arctic fox lines lemmings up in neat rows in its winter caches.

A second pattern complements this oscillation—long stillnesses broken by sudden movement. The river you have been traveling over by dogsled every week for eight months, and have come to think of as a solid piece of the earth, you wake one day to find a heaving jumble of ice. The spring silence is broken by pistol reports of cracking on the river, and then the sound of breaking branches and the whining pop of a falling tree as the careening blocks of ice gouge the riverbanks. A related but far eerier phenomenon occurs in the coastal ice. Suddenly in the middle of winter and without warning a huge piece of sea ice surges hundreds of feet

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