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365 STARRY NIGHTS

THE PATH

*A One-Mile Walk
Through the Universe*



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PROLOGUE

FOR THIRTY-SEVEN YEARS I have walked the same path back and forth each day from my home in the village of North Easton, Massachusetts, to my place of work, Stonehill College. The path takes me along a street of century-old houses, through woods and fields, across a stream, along a water meadow, and through an old orchard and community gardens. Much of the landscape of the path was designed by the famous American landscape architect Frederick Law Olmsted as an estate called Sheep Pasture for a great-grandson of Oliver Ames, the man who established in 1803 the shovel manufactory whose history is so intimately linked to the village. I have walked the path so many times, I believe I could do it blindfolded; certainly, I have done it on the darkest nights.

If it is possible to know a landscape well, I know this one. I can anticipate the exact day in late Febru-

ary when I will hear the first red-winged blackbirds taking up territories along the brook. I know to the hour when the spring peepers in the water meadow will begin their song, and when the wood anemones will open their five-petaled blossoms beside the shaded path. I know day by day the moments of sunrise and sunset, when the new moon will grace the western sky with its eyelash crescent, and when Orion will rise in the east. After thirty-seven years this knowledge is in my bones, put there by long experience, by close observation, by love. At the same time I know that it is not possible to know any landscape exhaustively. For all of its familiarity, there has never been a day I have walked the path without seeing something noteworthy. There are some things I have seen only once in all those years: a single blossom of wild columbine, a kingfisher by the stream, a dog stinkhorn mushroom.

Every pebble and wildflower has a story to tell. The flake of granite in the path was once at the core of towering mountains pushed up across New England when continents collided. The purple loosestrife beside the stream emigrated from Europe in the 1800s as a garden ornamental, then went wantonly native in a land of wild frontiers. The light from the star Arcturus I see reflected in the brook beneath the bridge at night has been traveling across space for forty years before entering my eye. I have attended to all of these stories and tried to hear what the landscape has to say. Binoculars and magnifier

helped: binoculars for the red-tailed hawk at the top of the distant pine, magnifier to inspect the clever sexual parts—male paint brush and female sticky pad—of the cardinal flower.

Of course, no one person has the time, knowledge, or skill to learn everything about a landscape, so in my walks I have relied upon the labors of generations of botanists, ornithologists, zoologists, geologists, ecologists, meteorologists, astronomers, cultural historians, and a host of other specialists who have studied with particular care some feature of the natural world. Whenever possible, I queried people I met along the way: the old people who grew up in the landscape, who knew it in its former incarnations, who watched it change; and the children, who still have the capacity to see everything afresh and to see things the rest of us might miss. I have attended, too, to language. How did the wood anemone and Sheep Pasture get their names? What does the *queset* of Queset Brook signify in the language of Native Americans? Scratch a name in a landscape, and history bubbles up like a spring.

In my daily rambles along the path, I have been inspired by a famous observer of the Irish landscape, the early-twentieth-century naturalist Robert Lloyd Praeger, who walked over all of Ireland “with reverent feet,” he said, eschewing motor transport, “stopping often, watching closely, listening carefully.” And although I have aspired to Praeger’s pedal reverence, I know I have fallen short. Another

thirty-seven years walking my path would not do it justice. The contemporary writer and cartographer Tim Robinson, another close observer of the Irish landscape, defines something he calls the "adequate step," a step worthy of the landscape it traverses. The adequate step takes note of geology, biology, myths, history, and politics, says Robinson in *Stones of Aran*. It also includes the consciousness of the walker. And even all of that, he states, is not enough. No step, or series of steps, can ever be fully adequate. "To forget the dimensions of the step is to forgo our honor as human beings," he writes, "but an awareness of them equal to the involuted complexities under foot at any given moment would be a crushing backload to carry."

A crushing backload, indeed: fiddlehead ferns, downy woodpecker, pickerel, granite flake, Canada mayflower, moonrise, bluebirds, spring peepers, monarch butterflies, glacial scratches on bedrock, and, of course, the human history of my path, which in its transformations over the centuries encapsulates in many surprising ways the history of our nation and of our fickle love affair with the natural world. Step by step, year by year, the landscape I traversed became deeper, richer, more multidimensional, always overflowing the mind that sought to contain it. Ultimately, almost without my willing it, the path became more than a walk, more than an education, more than a life; it became

the Path, a *Tao* (Way), a thread that ties one human life and the universe together.

A weed plucked at the side of the path might have found its way to the New World in a seventeenth-century sailing ship. Scratches on a rocky ledge evoke colossal mountain-building events on the other side of the world millions of years ago that modified the planet's climate and caused glaciers to creep across New England. The oxygen atoms I suck into my lungs were forged in stars that lived and died long before the Earth was born. It is something of a cliché to say that everything is connected to everything else, but when you know one place well—not just intellectually but with the deep-gut knowledge that enters through the soles of your feet—connections just keep popping up. A character in Anne Michaels's novel *Fugitive Pieces* says: "If you know one landscape well, you will look at all other landscapes differently. And if you learn to love one place, sometimes you can also learn to love another." Having learned to know and love my path in all of its local abundance, the light-years and the eons no longer seem quite so forbidding, tropical rain forests and droughty deserts seem not so far away. A minute lived attentively can contain a millennium; an adequate step can span the planet.

Measured from end to end, the path described in the following pages is hardly more than a mile, but the territory it traverses is as big as the uni-

verse. I don't mean to suggest that my path is in any way special; it is commonplace—about 3,000 paces of more or less typical New England landscape. It is the fact that it *is* commonplace that is the point of this book. Any path can become *the* Path if attended to with care, without preconceptions, informed by knowledge, and open to surprise.

VILLAGE



IN 1850 the great impresario P. T. Barnum brought to the United States a young coloratura soprano who had already captivated the affections of Europe. Her irresistible name was Jenny Lind, and she became America's first pop star. For two years, she entranced audiences up and down the Eastern Seaboard with a voice that was said to be divine—although Barnum's hype may have been as much a part of Jenny's success as her talent. In the wake of her visit, and for decades afterward, schools, streets, public buildings, even towns were named for the Swedish Nightingale.

Swedish immigrants comprised a substantial part of the workforce at the Ames Shovel Company of North Easton, Massachusetts, twenty miles south of Boston. In the 1870s the company and the village were at the height of their prosperity; it is said that

three-fifths of all the shovels manufactured in the world at that time were made in the Ames factories. New streets were laid out to accommodate the village's growing population. One of these was home to families named Swanson, Lonn, Anderson, and Lindquist. Not surprisingly, this street was christened for the most famous Swede of all.

My walk to work each day starts along Jenny Lind Street; it is the first part of the path. The houses on the street are typical late-nineteenth-century mill-town housing: two-story, front-gabled, timber-frame-and-clapboard construction. Many of the houses have modern additions at the sides or back, and perhaps a tacked-on porch, but it takes little imagination to see these structures as they must have looked in the 1870s and 1880s, as they went up one by one according to a standard plan in the mind of a local master carpenter. With my wife, I raised a family of four children in one of these houses, just around the corner from Jenny Lind Street. Even in the second half of the twentieth century it provided comfortable accommodation for the six of us. These sturdy homes must have seemed luxurious to the Ames factory workers who woke in the morning when the village wake-up bell was rung a half hour before dawn, who spent ten to twelve hours a day fabricating shovels at the factory, and who undoubtedly collapsed exhausted into bed not long after the curfew bell was rung at 9 P.M.

For all of the long working hours, nineteenth-

century North Easton must have been close to the American immigrant's dream: a one-company village with neatly laid-out streets, uncrowded neighborhoods, leafy trees, handsome parks, and schools, public buildings, and churches donated and maintained by the town's preeminent family, the Ameses. Yankees, Irish, Swedes, and Portuguese lived and worked side by side in apparent harmony; within a few generations they would intermarry and contribute their progeny to the American melting pot. Even at the height of late-nineteenth-century labor unrest in other parts of the country, workers in the North Easton shovel works remained loyal to their company. And the Ameses remained loyal to the town; as the family's political influence and entrepreneurship extended far beyond the borders of the town (to include the governorship of Massachusetts and pushing the first transcontinental railroad across the United States), the village of North Easton remained the focus of their family life and public beneficence. Their gifts to the town are still evident. Three public buildings (and two private structures) were commissioned by the Ameses from the illustrious architect Henry Hobson Richardson, and the stamp of the famous landscape architect Frederick Law Olmsted is everywhere to be seen. The village is today a place of pilgrimage for students of architecture and landscape design.

When twenty-four-year-old Oliver Ames came to North Easton in 1803, the town already had a

nascent industrial character, and Oliver was shrewd enough to see that the potential for development had only been lightly tapped. He had a product that a growing nation needed—it would take a lot of shovels to build the Erie Canal, then the Baltimore and Ohio Railroad. Later, the Civil War provided an apparently endless market for entrenching tools, and after the war the intercontinental railroad would be built with Ames shovels and Ames leadership. A great family fortune was acquired by forging steel and hardwood into tools for continental conquest, and samples of those shovels today reside in the Tofias Industrial Archives of Stonehill College. There is a shovel shaped for every purpose, and in their collectivity they constitute a kind of history of nineteenth-century America: canals, railroads, water power, mining, steam, agriculture, war, and, as the century matured, the first purely aesthetic works of landscape architecture, such as Olmsted's great city parks (in New York a workforce of 3,600 men moved millions of tons of earth to create Central Park). The Ames shovel was an instrument by which visionary men could shape the landscape to their dreams and desires, but only as much material could be moved at a time as a man could lift. The resulting works were ensured a human scale.

North Easton offered two natural resources which Oliver recognized, and which he and his sons brilliantly exploited: water and gravity. The water flowed

in the Queset Brook, a relatively minor stream that one can almost jump across as it tumbles through North Easton village. The brook rises with trickles of springwater in the highlands north and west of town, then gathers into a modest but reliable flow as it passes near the center of the village. In the Queset's mile-long run through the industrial quarter of the village, it drops fifty feet. When a cubic foot of water drops through fifty feet, it surrenders enough energy to run a dozen modern washing machines for the time it takes the water to fall. Keep many cubic feet of water coming in a steady stream, and you have the power to hammer shovel blades from chunks of iron, to edge and polish blades, to turn hardwood logs into handles, to fix handles to blades.

Men with sledges could make shovels with muscle power alone, as they had done for centuries, but not as cheaply, reliably, or in such volume as was possible with water power. The babbling Queset Brook, in its carefree tumble from the resistant granite highlands north of town to the more deeply eroded sedimentary plains to the south, when properly harnessed was an ever-flowing source of wealth. Oliver Ames harnessed it and, with his sons, Oakes and Oliver II, turned water and gravity into a family fortune.

I LOVE THE subtle sounds of my morning walk along Jenny Lind Street. I listen to the amorous suit of a bright red cardinal in a tree by the Catholic

church, and the who-gives-a-damn chatter of jays at backyard feeders. Through windows open just a crack, I hear the muffled music of kitchen radios, and mothers shouting to slug-a-bed kids. It would not have been so in the era of the shovel shops. The great water-powered hammers thundered all day long, from 7 A.M. to 6 P.M., presumably obliterating the sounds of nature and domestic life. It is said that the banging could be heard a mile or more away. Students in the grammar school and high school, on high ground in the middle of the village, studied their lessons and practiced their drills to the steady *thud, thud, thud* of the hammers. The Swedish housewives in their tidy frame houses on Jenny Lind Street performed their morning chores to the booming timpani of shovel making. Not even the Ameses were exempt from the din; the homes of the first two generations of the family were situated hard by the factories. The squeak of turning waterwheels, the bang of hammers, the rasping buzz of saws—this was the aural background of the Industrial Revolution in America. In North Easton, the driving force of this cacophony was the gentle Queset Brook.

Water was sacred in all ancient cultures—every pool and stream was believed to have its resident spirit. Against this overlay of sacred myth, the mundane idea that water could be used as a source of energy was hard won. The first record of a waterwheel harnessed to turn a millstone comes from the Roman world of the first century B.C.E., but the Romans

were not in a hurry to exploit waterpower, perhaps because it would throw so many human slaves out of work. Only when Constantine turned the empire toward Christianity in the fourth century C.E. did water mills become commonplace, perhaps because there were fewer slaves to do the work, or perhaps because monotheistic Christians were less troubled than pagans about resident sprites of pools and streams. In general, Christians had few prejudices against technology; after all, didn't God give Adam dominion over the planet and its creatures, commanding him to "subdue the Earth"? Christians may have had their eyes fixed on Heaven, but their feet were firmly planted on terra firma. In the days of Oliver Ames, Christians were not the least reluctant to ask flowing water to drive their mills; for the pious, patriarchal entrepreneurs of the Industrial Revolution, a turning waterwheel squeaked out its owner's prayer: *O Lord, increase my bounty that I may serve you.*

Not far from the end of the path, in a wooded part of the Stonehill College campus, is an eighteenth-century millstone quarry. Several unfinished millstones remain part of the living rock, rising up from the forest floor like Druidic altars. One large millstone, five feet in diameter, was finished by the quarriers but never moved. Some years ago a group of stalwart students tried to move the stone to the central campus quad, unsuccessfully. The millstone would have made a fitting centerpiece for the campus, which is a former Ames family estate. The

stone, which I calculate to be about three tons, was almost certainly meant to be turned by the modest Queset Brook, a superb testimony to the power of water when gravity causes it to flow downhill.

What gravity is and why it is, no one knows. Albert Einstein spent most of his life trying to figure it out, but the secret eluded him. It is simply a fact that everything in the universe with mass pulls on everything else. If it weren't for the initial outward impetus of the Big Bang, gravity would have caused the entire universe to collapse into a heap. (Indeed, someday the cosmic collapse may happen, if and when the initial impetus is expended, although the best evidence suggests that the expansion will go on forever.) According to present theories, the universe began about 15 billion years ago as an explosion from an infinitely small, infinitely hot seed of pure energy. As the primeval fireball expanded and cooled, matter—hydrogen and helium—condensed from radiation. The first stars and galaxies were born as gravity pulled the hydrogen and helium gas together into massive spheres and eddies. As stars burn, they fuse hydrogen nuclei into helium and then into heavier elements, and when stars die explosively, they scatter those heavy elements into space. After many generations of exploding stars had seeded the universe with carbon, oxygen, silicon, and iron, our own Earth and Sun were squeezed into existence by gravity.

When atomic nuclei fuse at the core of a star, some of their mass is turned into pure energy, ac-

cording to Einstein's famous equation, $E = mc^2$ (energy equals mass times the speed of light squared). Every second at the Sun's center, 660 million tons of hydrogen are fused into 655 million tons of helium, and the missing 5 million tons of matter ultimately appears at the Sun's surface as heat and light radiated into space. A tiny fraction of the Sun's energy falls upon the Earth's oceans and evaporates water molecules into the air. It takes about 1,000 calories of energy for the Sun to evaporate a thimbleful of water from the sea; each thimbleful of water in the atmosphere represents 1,000 calories of stored solar energy. The Sun does the heavy lifting on Earth, heaving tens of thousands of cubic miles of water up out of the seas and into the atmosphere each year. Most of this water precipitates back into the oceans, but some of it falls on land as rain or snow, from whence it makes its way downhill to the sea in a great recirculation called the water cycle. Around and around the water has cycled for 4 billion years, since the oceans were born, in trickle or torrent, eroding and shaping the land, bringing fresh water to land plants and animals, providing terrestrial habitats for life.

North Easton's Queset Brook is a tiny conduit in this unceasing flow. Young Oliver Ames looked at the Queset Brook and saw God's solar-powered engine, providential energy waiting to be tapped. He built dams to the north and west of the village to impound water during times when the fac-

tory was idle or when rain swelled the streams beyond the capacity of the mills to use the excess. Water behind a dam is like money in the bank. It can be made to turn a wheel; it can pound and grind and drill.

Today, North Easton's shovel shops are silent, and the Sun-lifted energy of the Queset Brook is expended as a pleasing babble only, as the stream tumbles untroubled from pond to pond. Standing beside the brook, one finds it hard to imagine how these placid waters ever supplied the force that made the factories go. But occasionally the babbling thimblefuls of water, when gathered in prodigious numbers, do shout and roar. This happened on February 12, 1886, when heavy rain on frozen ground filled the Long Pond Dam north of the village to overflowing. Ames Company agents worked heroically to shore up the dam against the gathering flood, but eventually water breached the barrier and rushed downstream through the village, washing out a section of railway track. More serious damage was narrowly averted.

Not so in the Great Flood of March 18, 1968, when there were no company personnel around to mind the dams or tend repairs. All morning and afternoon the sky gushed water, six inches of rain in a few hours. At 5:30 P.M., without warning, the dam at Flyaway Pond west of town gave way with a sudden roar, and 350,000 tons of water were released onto the village. Trees and automobiles were swept away.

Houses were battered. Massive stone walls tumbled. It was a sudden, vivid indication of the Sun-stored energy that a century earlier had banged out the majority of the world's shovels.

WHEN HENRY DAVID THOREAU and his brother John took their famous boating trip along the Concord and Merrimack Rivers in the summer of 1839, they too witnessed a demonstration of the power of water and gravity. The Concord River takes a more or less level course through flat meadows; its reedy banks were then (and remain today) home to a rich proliferation of wildlife. The Merrimack River, by contrast, tumbles downhill out of the granite mountains of New Hampshire, and in Thoreau's time its banks were lined with working mills, replacing the "wild musical sounds" of the Concord with the din of industry. As they camped along the Merrimack, even on Sunday, Henry and John were kept awake at night by the raucous sport of mill laborers, who were "unwearied and unresting on this seventh day." Similarly, anyone camped along North Easton's Queset Brook in that same year would have heard the hammers pounding all day long—a far cry from the birdsong and insect buzz that hymned the Queset Brook before the coming of Oliver Ames, and which hymn it again now that the mills are gone.

The Queset is a small stream; it hasn't nearly the

volume of Rhode Island's Blackstone River or New Hampshire's Merrimack River, those wider torrents that turned so many wheels of America's Industrial Revolution. The Queset's capacity for work was soon found wanting. In 1821 the Ames factories were producing 370 dozen shovels a year, and this output taxed the available water supply. Upstream of the village, dams were thrown across every tributary of the Queset, catching every available drop of water. Production rose to 4,000 dozen shovels in 1832, and 20,000 dozen shovels in 1844. Eventually, the power of the brook was maxed out, all those thimblefuls of solar energy squeezed of their power. If production was to expand further, new sources of energy had to be found. In 1852 the company installed the first steam engine, and the village began to sever its economic relationship with Queset Brook.

STEAM POWER IS no less a gift of the Sun than tumbling water, and to understand this story, too, one must go back to the beginning. When the first single-celled organisms appeared on Earth, more than 3 billion years ago, they fed upon carbohydrates—sugars—dissolved in the sea. The sugars had their origin in chance chemical reactions. Life, however, multiplied exponentially; one cell made two, two made four, four made eight, and so on. Self-replication is the essence of life. It was inevitable that burgeoning organisms in the sea would outstrip

their catch-as-catch-can food supply. It would seem that life was doomed to a dead end, but before the sugars ran out, certain organisms evolved the ability to use the energy of sunlight to synthesize carbohydrates from carbon dioxide and water, a chemical reaction called photosynthesis, catalyzed by chlorophyll. And so the first plants appeared on Earth, manufacturing their own fuel. No longer did those earliest organisms live a hunter-gatherer existence, scrounging fuel from the sea; now they settled down and became farmers, so to speak, making their own food. And the cells that could not do photosynthesis fed upon cells that could. The planet greened, first with photosynthesizing algae in the sea, later with multicelled land plants.

Coal is fossilized plants. The coal seams of North America were once swampy forests that covered parts of the Earth's surface hundreds of millions of years ago. The trees, with their energy-packed carbohydrates, died, fell to the forest floor, and were eventually buried and compressed into coal. Like a thimbleful of water lifted into the atmosphere by evaporation, a lump of coal is a packet of stored sunlight. When the water of the Queset Brook could no longer supply sufficient energy to drive their shops, the Ames turned to energy buried within 300-million-year-old forests. When the first steam engines were installed in the Ames factories in the early 1850s, they were fed with Nova Scotia coal, schoonered to Fall River along the coast, then

hauled by ox-drawn wagon or sleigh to North Easton. In 1855 the first railroad reached the village with coal from Pennsylvania—and there was no turning back.

A steam engine is a miniature version of the planet's water cycle. Wood or coal is burned to heat liquid water into vapor. The hot vapor at high pressure pushes a piston in an iron cylinder. At the end of the stroke the steam is condensed back to liquid water, and the resulting partial vacuum in the cylinder allows atmospheric pressure to drive the piston back down the cylinder. This linear stroke, back and forth, is converted to rotary motion by a system of levers. With the steam engine, industrialists had an efficient and reliable source of rotary power to drive their factories. But coal-fired energy was not as cheap as waterpower, and until the Queset Brook had given up its last babble of gravitational energy the Ameses had no motive to switch to steam.

During the second half of the nineteenth century, when the Queset Brook could no longer supply the requisite energy, North Easton schoolchildren did their lessons to the *chug* and *hiss* of iron engines. The waterwheels were abandoned, and the superfluous brook became no more than a town amenity, the ponds behind the dams pleasant places of recreation. But the location of the factories was all wrong; they were far removed from the source of coal, and even more distant from the primary markets for shovels in the developing West. Early in the twentieth century

the company purchased manufacturing facilities in Parkersburg, West Virginia. In 1932 the headquarters of the Ames Shovel Company followed the forges and hammers to coal-rich Appalachia. Exactly 100 years after the introduction of the first steam engine in North Easton, the last shovel-manufacturing facility in town began closing down.

THE SHOVEL SHOPS are gone, and the houses along Jenny Lind Street are no longer inhabited by Swedes. The street is rigged with electric lines, and wires for telephone, cable television, and broadband Internet access. Many of the carbon-copy two-story houses from the 1870s and 1880s have been doubled in size by modern additions, and in the driveways sit a car or two (or three). The original clapboards as often as not are covered with vinyl siding. The central village, too, has changed. Shopping malls in the outer parts of town have replaced Tom Barnhill's five-and-dime and Charlie Harvey's food market. The old Ames shovel shops have been converted to nonmanufacturing uses: light warehousing, insurance offices, even a health club. Locomotives no longer huff and puff through town, delivering coal to the factory, taking out shovels. The tracks are overgrown, the bridge over the tracks at Main Street replaced with fill, the switches that once shunted cars from main line to factory siding immobilized by rust.

North Easton is now a desirable bedroom com-

munity for Boston, and the descendants of Irish, Portuguese, and Swedish factory workers go to school with recent arrivals from every part of the country, including Blacks, Asians, and Hispanics. The schools endowed by Ames largesse, prominent on their hilltop locations at the village center, have been closed and replaced by more modern facilities on the village outskirts; education, once prominently on display, is now tucked out of sight. According to census lists for Jenny Lind Street, in 1916 the homeowners (mostly Swedes) included a tailor, shoemakers, a stonemason, carpenters, bakers, a coachman, a clerk, a gardener, a plumber, a milk dealer, and, of course, shovel makers. The 2000 census lists teachers, retail clerks, a systems analyst, a claims adjuster, a dental hygienist, a psychologist, a nuclear medicine technician, a travel agency manager, an attorney, a real estate broker, and—not to be found on the 1916 list—retirees. The transformation is striking; manual labor has given way to services, material products to ideas. Working hours are shorter, life spans longer. There is probably not a person among the current residents of Jenny Lind Street who hankers for the Ames factory wake-up bell that rang a half hour before dawn, the all-day bang of the hammers, the long work hours, and paucity of leisure. Evolution doesn't sit still. The arrow of history was shot from nature's bow 15 billion years ago and won't be put back.

One hundred and fifty years ago the inhabitants of Jenny Lind Street walked to work, streaming with other villagers to the factory floors from homes within sound of the coal-fired engines. Today, one by one, they climb into their cars and drive off toward Boston, as likely as not to one of the hundreds of computer firms strung out along Boston's Route 128, "America's Technology Highway." The fossil fuel that previously turned out shovels now powers the hundreds of automobiles that leave the village each morning to creep in ever-thickening traffic jams toward faraway places of work. Collective village life as it was known in the nineteenth-century has more or less come to an end. It doesn't really matter anymore where one lives; the automobile and school bus take us where we want to go. As I write, the citizens of Easton are vigorously opposing the return of the railroad to the town, this time to carry commuters to and from Boston. The private car reigns supreme, and the lovely railroad station designed by Henry Hobson Richardson is now headquarters of the Easton Historical Society.

SOMETHING PROFOUND happened to America when the Ameses and other nineteenth-century entrepreneurs switched from waterpower to steam, and later to internal combustion. Water—a clean, renewable resource—was replaced by fossil fuels. Worries about greenhouse warming, the exploita-

tion of remaining wilderness areas for coal, oil, and gas, and the inexorable spread of asphalt paving now have caused many people to hanker back to early-nineteenth-century village life, which was clustered near the factories and tumbling streams. Thoreau might have balked at the noise and clamor of North Easton had he visited in the age of water-power, but surely the village was a realization of mythic Arcadia, that imagined time and place in the Greek Peloponnese when spiritual and economic values were in happy balance, a tamed and congenial countryside beyond the urban hubbub where people lived in proximity to wild nature and earned their bread within reach of shank's mare. The Arcadian character of the village was nurtured by the beneficence of the Ames family and the talents of men like Richardson and Olmsted, whose work was imbued with the nature-worshipping sensitivities of Thoreau and Emerson. As Peter Schmitt has shown in his *Back to Nature: The Arcadian Myth in Urban America*, the dream of combining urban enterprise with wilderness sensibilities became particularly strong in the late nineteenth century, at precisely the time when the Ames estates of North Easton were taking shape, including the one that contains my path as I enter the woods at the end of Jenny Lind Street.

But however one chooses to romanticize what in retrospect seems a fetching life, it is impossible to reclaim it. Damming every stream in America will

not slake our need for energy. Fossil fuels supply that need for the time being; they also confer a freedom and mobility that most Americans seem to prize. Technology—with its awesome potential and perils—is here to stay.

"nature" is more than the happy haunts of the Bobbsey Twins; nature also includes bacteria, galaxies, quarks, and, yes, human culture. It would recognize that nature "in the raw" is built upon a platform of death and sometimes (by human standards) unspeakable cruelty, but that human moral choice can transcend the tooth-and-claw imperative of evolution. The landscape architects of Olmsted's era thought they were improving nature with shovel, ax, and barrow, and perhaps they were. They sought aesthetic and spiritual values in their landscapes, and these are what I have sought along the path.

The Arcadian ideal of humans living in harmony with tamed nature did not begin with Frederick Law Olmsted, Capability Brown, or even the supposed Peloponnesian paradise itself (witness the more ancient myth of the Garden of Eden), nor was it discredited by the obscenities of the twentieth century's wars, the Great Depression, or the grimmer excesses of technology. It is a sturdy old myth, and in it we might still hope to combine the Enlightenment, with its confidence in the power of the human mind to make sense of the world, and romanticism, with its belief that all of life is a miracle. Along the one-mile walk of the path, I have found these ostensibly competing tendencies happily fused: order and surprise, artificial and natural, civilized and wild, human self-interest and organic wholeness.

EPILOGUE

IN A PARK in West Bridgewater, about ten miles from North Easton, stands an old iron anvil. A plaque on a nearby forge-stone reads:

The land of this park was bought in 1649 from the Massasoit Indians by Miles Standish and others as part of the Bridgewater Purchase and allotted to John Ames, an original shareholder and settler. And here before the Revolutionary War the fourth inheritor, Captain John Ames began the manufacture of shovels with a trip-hammer set on this stone.

These were the first iron shovels made in the colonies. It was Captain John Ames's son, Oliver, who moved the shovel works to North Easton in 1803 and built the company into the largest shovel manufactory in the world. Charles Carroll of Car-

rollton, the last surviving signer of the Declaration of Independence, used an Ames shovel to turn the first spadeful of earth for America's first railroad.

When the Ames Shovel Company closed up shop in North Easton and moved to West Virginia, in the mid-twentieth century, the handsome stone-and-timber buildings were purchased by developer Arnold Tofias and converted to offices, warehouses, and light industrial use. On the upper floor of the old Ames administration building were stored 1,500 linear feet of company documents: production records, sales ledgers, employee time books, payrolls, legal papers, inventories, and correspondence. In addition to this paper trove, there were almost 800 shovels, some dating back to the earliest days of the company. All of this material was donated to Stonehill College by Tofias, where it now resides as the Arnold B. Tofias Industrial Archives, one of the nation's best collections of primary source materials for industrial history. The shovels themselves are a vivid record of nation building: shovels for earth or coal, trenching spades, nursery spades, potato scoops, coffee bean scoops, snow shovels, shovels for draining fields, military trenching tools, garden tools, even toy shovels for children. The most spectacular part of the collection is a magnificent floor-to-ceiling, wood-and-glass case containing several dozen silver-plated Ames shovels that was exhibited at the 1876 Centennial Exposition in

Philadelphia, celebrating 100 years of the nation's history—and this is as good a place as any for the path to end.

The shovels in the centennial collection combine beauty and utility. The wooden handles extend and amplify human force; the steel blades slice and cut and carry. What makes these tools so attractive is their scale, their satisfying heft in the hands, the way they move in harmony with human limbs, the polish of sweat on grip and shaft. With these instruments nineteenth-century Americans turned a raw continent into a free, unified, and stable democracy, the most powerful on Earth. This achievement did not come without environmental devastation, political scandal, social injustice, and genocide. But the balance sheet of history will show, I believe, that a larger percentage of us live better, healthier, and longer lives than ever before.

About half of the Earth's land surface is presently exploited by humans, and all of the land and water surface is touched in some way by the waste products of human cunning. Energy use has grown sixfold in the last century, much faster than population. An invisible worldwide web of information dances between the planet's surface and orbiting satellites at the speed of light. As I write these final words, I am far from the path, on a little island in the tropics, but with a few taps of a finger I can retrieve on my laptop computer screen a satellite

image of the path from space, on which I can recognize the woods, fields, bridge, and gardens. The chemist Paul Crutzen has proposed the term *Anthropocene* (*anthro* = human) to represent the present age of Earth's history, in which human artifice is the dominant geologic force. The Anthropocene can be said to have started in the latter part of the eighteenth century, he says—analysis of air trapped in arctic ice 200 years ago shows the beginning of growing global concentrations of carbon dioxide and methane. This date coincides with James Watt's innovations in steam power, and with the beginning of shovel manufacturing by John Ames in West Bridgewater.

The technological products of human ingenuity represent an inevitable stage in planetary evolution, yet our Arcadian yearnings are dictated by millions of years of pretechnological human evolution. It is a conundrum of human life that our intellects have outraced our instincts; cultural evolution has overtaken organic evolution. Biologically, we are hunter-gatherers who suddenly find ourselves in command of almost unimaginable powers for planetary transformation. We struggle to bring together our genes and our aspirations, Wilderness and Technopolis, the romantic and the visionary, spirit and economics. Scientists and engineers are responsible for ensuring that the Anthropocene Era will be good for the human race and good for the planet, with its diversity of creatures and habitats. Architects and planners are implicated, too, and the managers and

stockholders of multinational corporations, politicians, philosophers, poets, and religious leaders. Most of us, however, will make our contribution for good or ill on the local scale, along paths that begin at our own front door.

***The Path* by Chet Raymo: Discussion Questions**

What is Raymo's Call to Adventure for his readers?

Does this reading expand your understanding of Setting? If so, how?

What is the Tone of Raymo's text? Offer at least two quotes to support your claim.

Define the "adequate step."

How can the commonplace be special? How can "the particular contain the all"?

How does Raymo use sensory experience throughout the text?

What is the rhetorical effect(s) of Raymo's interweaving of his observations of contemporary nature with social history and with natural history?

Does Raymo's presentation of his village's history challenge your ideas of 19th century life in the United States? If so, how? Think about the sounds of the village which Raymo charts.

What do we learn about Raymo as a Character in this piece?

How have what you learned by reading Raymo, Ellerbee, and Ackerman impacted the ways you encounter your environment?

Consider Raymo's observation, "Scratch a name in a landscape, and history bubbles up like a spring" (3). What does he mean? Offer an example.

What is the method of engaging the environment that Raymo advocates when he writes about walking "with reverent feet" (3).

What are the two natural resources that Raymo identifies Oliver Ames as exploiting to create his shovel factory?

What sounds became prevalent when the shovel factory switched from water to steam?

What does the chemist Paul Crutzen mean when he talks about the Anthropocene?

What does Raymo mean in the following observation: "It is a conundrum of human life that our intellects have outraced our instincts; cultural evolution has overtaken organic evolution ... We struggle to bring together our genes and our aspirations" (176).

Drawing upon your reading experiences of Raymo, elaborate on this line of Maxine Kumin's poetry: "Love, we are a small pond."

What gives you your sense of place? Is it important to be attached to a particular landscape?

In what way might a path become a Tao?

Chet Raymo Info ...

Chet Raymo (born September 17, 1936 in Chattanooga, Tennessee) is a noted writer, educator and naturalist. He is Professor Emeritus of Physics at Stonehill College, in Easton, Massachusetts. His weekly newspaper column *Science Musings* appeared in the Boston Globe for twenty years. This is now a daily blog by him. Raymo espouses his Religious Naturalism in *When God is Gone Everything is Holy – The Making of a Religious Naturalist* and frequently in his blog. As Raymo says - *I attend to this infinitely mysterious world with reverence, awe, thanksgiving, praise. All religious qualities.* [1] Raymo has been a contributor to The Notre Dame Magazine [2] and Scientific American.[3] His most famous book was the novel entitled *The Dork of Cork*, and was made into the feature length film *Frankie Starlight*. Raymo is also the author of *Walking Zero*, a scientific and historical account of his wanderings along the Prime Meridian in Great Britain. Raymo was the recipient of the 1998 Lannan Literary Award for his Nonfiction work.

To walk down Dr. Raymo's path, visit <http://www.youtube.com/watch?v=PKi7hwpiNbk>. To know what Dr. Raymo's thinking about today, visit <http://blog.sciencemusings.com/>.

Major works

- 1982 *365 Starry Nights* ISBN 0-6717-6606-6
- 1984 *Biography of a Planet* ISBN 0-13-078221-1
- 1985 *The Soul of the Night* ISBN 1-5610-1236-X
- 1987 *Honey from Stone* ISBN 1-5610-1235-1
- 1990 *In the Falcon's Claw* ISBN 1-5610-1287-4
- 1991 *The Virgin and the Mousetrap: Essays in Search of the Soul of Science*, Viking Books ISBN 0670833150
- 1993 *The Dork of Cork* ISBN 0-4466-7000-6
- 1998 *Skeptics and True Believers* ISBN 0-8027-7564-0
- 2000 *Natural Prayers* ISBN 1-8869-1345-5
- 2001 *An Intimate Look at the Night Sky* ISBN 0-8027-1369-6
- 2003 *The Path* ISBN 0-8027-1402-1
- 2004 *Climbing Brandon* ISBN 0-8027-1433-1
- 2005 *Valentine* ISBN 1-5610-1286-6
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External links

- Science Musings (official blog site)
- Lannan Foundation Biography
- Top Ten Books for Religious Naturalism
- Religious Naturalist