

## CHAPTER ONE



### TRACKS IN THE WILDERNESS

*Mountains lie all about, with many difficult turns leading here and there. The trails run up and down; we are martyred by obstructing rocks. No matter how well we keep the path, if we miss one single step, we shall never know safe return.*

*But whoever has the good fortune to penetrate that wilderness, for his labors will gain a beatific reward. The wilderness abounds in whatsoever the ear desires to hear, whatsoever pleases the eye.*

Gottfried von Strassburg  
*Tristan*

I FIRST WENT to the Klamath Mountains in 1969, with a fifteen-dollar sleeping bag, a canvas Boy Scout knapsack, some canned goods, and a peculiarly unreliable U.S. Forest Service recreation map. I didn't get far into the woods. I spent most of the time nervously driving my secondhand Volkswagen over hideously rocky logging roads, searching for hiking trails that seemed to have been swallowed by the logging roads, though they were marked on my map. In effect, I was walled into the Klamath River gorge by steep, brushy slopes, piles of logging slash, and my own ignorance. The wilderness I was vaguely seeking, the high Siskiyou, remained a paper expanse of Forest Service green marked with tantalizingly picturesque place names—Cyclone Gap, No Man's Creek, Dark Canyon.

Still, I came away from these days of frustration with two strong impressions. The first struck me at twilight as I looked west toward the heavily forested Siskiyou ridgeline. It was one of the clear, almost colorless sunsets typical of the Klamath Mountains in summer, the cloudless sky turning a dusky orange-red that merely deepened the heavy forest green of the ridges. A slight wind pulled from the east, otherwise the landscape was motionless. Despite the picture-postcard aspect of its pines and peaks, it was the strangest landscape I had ever seen.

The ridges were not particularly high or craggy, rather a succession of steep, pyramidal shapes that marched almost geometrically into blue distance. The big conifers that crowned them enhanced an impression of regularity, almost of discipline. There was a tension in the ridges that departed radically from conventional notions of the irregularity and relaxation of wide open spaces. It was almost an attention. I felt the hair stand up on the backs of my arms and legs. The faint sibilance of wind in pine needles called attention to a quiet so intense that I was reluctant to move, like a grouse chick crouched on the forest floor.

The ridges seemed not only vigilant, but reticent, as though hidden within them might be the most extraordinary things. Perhaps this impression was colored by my awareness that I was looking toward the Bluff Creek drainage, where giant, humanoid footprints had been found in the dust of a road-building project in the early 1960s. The pyramidal ridges seemed to say "mystery" to my mind in the way that the shape or color of a parent bird's bill says "food" to its nestlings. Pyramids have a way of doing that, as evidenced by the lasting fascination of certain Egyptian tombs. The Siskiyou ridges might have been the vegetated remnants of some prehistoric city, vast beyond comprehension. They did not seem altogether natural, at least, not with the insensate simplicity often associated with nature.

Nightfall deepened the impression of attentiveness. The trees looked much taller against the stars, which came out in a profusion I'd never seen before. The ridges were outlined clearly against the starry horizon. As I sat feeding a small fire against the chill, I noticed that a grove of trees nearby had begun to glow with a cold but surprisingly bright light. The light spread down to the canyon floor and struck pale highlights on the rocks, as though some presence

were approaching through the trees. Then something caught my eye in the opposite direction, down the canyon. I turned my head and saw a light so brilliantly white I had to shield my eyes from it, as from a headlight. The moon had just risen above the ridges and was casting its beams into the canyon.

The subject of my second impression was more mundane. The following afternoon I was trudging down a dusty road, having again failed to find a mapped trail, when I chanced upon a fresh pile of bear scat. The dust clearly showed how the bear had ambled to the road's center, defecated a heap of berry seeds, root fibers, and rodent hairs, then wandered downhill. I had never seen a wild bear, and I think this was the first clear evidence I'd seen of one's immediate presence. It was somehow dizzying to come upon. It struck me with something that I had known but never felt: bears precede our perception of them, they came before national forests, before the *word* forest — black, shaggy beings emergent from millions of forested years without benefit of manufacture or legislation.

I think this vertigo overthrew for the first time my unconscious childhood assumption that the world had been made by my parents or some other human authority. The feeling recalled dreams I had experienced in a time of postadolescent anxiety, dreams in which I floated above great depths of air or water so bright and clear that animals and plants beneath me glowed with colors beyond my capacity to describe, colors without names. They had been enthralling dreams, but a little frightening, since there was always the possibility that I might fall or sink into the depths. But this had never happened. Instead, as the dreams continued over several years, the beings in the depths began to rise toward me, with increasing surges of power, until (while sleeping on the floor of a friend's apartment in Manhattan on a sticky summer night) I found myself at the apex of a maelstrom of creatures — fish, snakes, seals, blue horses with wings and scaly, serpentine, fishtails. Far from being frightened, I had felt buoyed up by this fountain of life, reassured; and after a few more such dreams, my anxieties had quieted. The dreams had gone away.

There was little chance of my floating through the air in the Klamath Mountains, but my impression of the bear's deep ancestry was not the less strong for being a waking, mundane one. In a way it was stronger. Vast as the spaces of my dreams had been, I felt I was

glimpsing much greater spaces, which my dreams had only reflected. I was seeing a bear as it really is, not only a black animal in a forest, but part of a long wave of black animals surging upward from depths of time imperceptible to normal senses. I felt as though I had seen in four dimensions for a moment, as though some nascent or atrophied sense organ had given me a twinge.

Ten years passed before I went back to the Siskiyou. During that time I walked into a number of wild places, and acquired what I thought was a fair knowledge of western mountain wilderness: of the climb from chaparral or sagebrush in the Upper Sonoran Zone; through Douglas fir, ponderosa pine, and white fir in the Transition Zone; past lodgepole pine, red fir, or Engelmann spruce in the Canadian Zone; to stunted whitebark pines and heather in the Alpine Zone. I went to a few places where there were still grizzly bear tracks as well as black bear tracks. So I didn't really expect to find much that was new when I started up the Clear Creek trail into the northern part of the high Siskiyou in June of 1979 with my down sleeping bag, gas stove, contour maps, and other sophistications. But the Siskiyou still had some things to show me.

I knew the Siskiyou are among the richest botanical areas of the West, and I soon saw evidence of this as I followed Clear Creek upstream. Tributary ravines contained so much blossoming azalea that the forest often smelled like a roomful of fancy women, and rhododendrons were in flower on one flat bench. There were more orchids than I'd seen anywhere. California lady's slippers hung over one rivulet like tiny Japanese lanterns dipped in honey, and I found three species of coralroot, red and orange orchids that have no green leaves, lacking chlorophyll. Farther up the trail, where snow had melted recently, pink calypso orchids had just burst through the pine duff.

The forest that overshadowed these flowers was the most diverse I'd seen west of the Mississippi. Besides the Douglas fir, tan oak, madrone, golden chinquapin, and goldencup oak I had expected just east of the coastal crest, I found ponderosa pine, Jeffrey pine, sugar pine, western white pine, knobcone pine, and incense cedar. Moist ravines were full of Port Orford cedar, a lacy-foliaged tree with fluted bark like a redwood's. The diversity became confusing; it seemed I had to consult my tree field guide every few minutes.

As I climbed higher, I kept expecting this unwonted diversity to

sort itself out into the usual altitudinal zones, waiting for white fir, ponderosa pine, and incense cedar to close ranks against the confusion. But it didn't happen. Douglas fir kept playing its polymorphous tricks, its foliage sometimes resembling the flattened needles of white fir, sometimes dangling like the branches of weeping spruce. I got a stiff neck looking up to see if cones hung downward, denoting Douglas fir, or stood upright, denoting white fir (or perhaps silver fir, grand fir, or noble fir, three other species found in the Klamaths).

Broad-leaved madrone and tan oak disappeared obligingly after I reached a certain altitude, but then new species appeared. I found western yew, a sturdy little tree resembling a miniature redwood, and Sadler's oak, another small tree whose serrated leaves reminded me of the chestnut oaks I'd known in the Midwest. I passed a grove of lodgepole pines, and these austere trees, which typically grow on bleak, windswept terrain, looked out of place in all the effulgent variety. The trees were sorted out somewhat according to soil conditions, but these distinctions were patchy and vague, offering cold comfort to my organizing instincts.

After two days of walking, I stood on the slopes of Preston Peak, which is 7,309 feet above sea level at its summit but seems higher as it thrusts abruptly above the forested ridges. I was surprised, on looking around at the snow-stunted trees on the glacial moraine where I stood, to find that they were the same species that had accompanied me from the Klamath River: Douglas fir, ponderosa pine, incense cedar, western yew, Sadler's oak, white fir. Even goldencup oak, golden chinquapin, and bay laurel grew there at about 5,000 feet, albeit in shrubby form.

Clearly, there was something odd about the Siskiyou forest. For so many species to grow all over a mountain range simply doesn't conform to respectable western life-zone patterns. It is more like some untidy temperate deciduous forest or tropical rainforest, species promiscuously tumbled together without regard for ecological proprieties.

The high Siskiyou forest is a rare remnant of a much lusher past. Fossils of trees almost identical to those of the Siskiyou have been dug from twelve-million-year-old, Pliocene epoch sediments in what are now the deserts of Idaho and eastern Oregon. Fossils of trees not at all unlike Siskiyou species have been found in *forty*-million-year-

old sediments in Alaska. In that epoch, the Eocene, a temperate forest surpassing any living today covered the northern half of this continent from coast to coast. Redwoods, pines, firs, and cedars grew with hickories, beeches, magnolias, and other hardwoods not found within a thousand miles of the Pacific Ocean today, and with ginkgoes, dawn redwoods, and other trees that don't even grow naturally in North America anymore. It is hard to imagine such a forest: it sounds like poets' descriptions of Eden. After the Eocene, though, the climate became cooler and drier; and this gradually drove the forest southward, and split it in half. Deciduous hardwoods migrated southeast, where the summer rain they needed was still available, while many conifers migrated southwest to cover the growing Rocky Mountain and Pacific Coast ranges. Ginkgoes and dawn redwoods fell by the wayside during this "long march," which has resulted in our present, relatively impoverished forests, where trees that once grew together are separated by wide prairies and plains.

There is still one area west of the Rockies, however, where rainfall and temperatures approximate the benign Eocene environment: the inner coastal ranges of southwest Oregon and northwest California, the Klamath Mountains. In the Klamaths, winters are mild enough and summers moist enough for species to grow together that elsewhere are segregated by altitude or latitude. Several species that once grew throughout the West now survive only in the Klamaths. Perched on my Siskiyou eminence, I again felt suspended over great gulfs of time. The stunted little trees and their giant relatives on the lower slopes were not a mere oddity forest where ill-assorted species came together in a meaningless jumble. They were in a sense the ancestors of all western forests, the rich gene pool from which the less varied, modern conifer forests have marched out to conquer forbidding heights from Montana to New Mexico. Looking out over the pyramidal Siskiyou ridges, I was seeing a community of trees at least forty million years old.

Later that day something hair-raising happened. There were still some patches of snow, and I had walked across one on the way to my campsite. After dinner I wandered back past that patch and found, punched deeply into each of my vibram-soled footprints, the tracks of a large bear. It probably had been foraging in Rattlesnake Meadow, heard me coming, and took the trail downhill to escape my

intrusion. A simple coincidence, but it caused a sudden feeling of emptiness at the pit of my stomach, as though I were riding a fast elevator. It seemed the lesson begun ten years before was proceeding: from a realization that the world is much greater and older than normal human perception of it, to a reminder that the human is a participant as well as a perceiver in the ancient continuum of bears and forests. I was used to walking in bear tracks by this time; it was instructive to find that a bear also could walk in mine.

The Siskiyou weren't through with me. I got sick the next day for some reason, probably fatigue. I'd been living in the Midwest for three years and had grown unaccustomed to running around on mountains. It was thought-provoking to lie in the wilderness that night with the suspicion that I might have been about to have a heart attack. I had many sleepless hours to wonder why I kept going to places like the Siskiyou when so many civilized places were so much easier to get to. I'm not all *that* crazy about exercise. Wilderness areas are certainly among the most beautiful places on the planet, but I wonder if this alone is enough to explain the fascination many people feel for them, or the difficulties and real suffering they endure to reach them. I thought of Audubon, feverish and vomiting from tainted turkey meat in the trackless Ohio forest; Thoreau dragging his tuberculosis to the Minnesota frontier; Muir stumbling with frostbite across Mount Shasta's glaciers. I may have been delirious: my mind started reeling through history—tribal youths starving on mountaintops for totem visions, Taoist sages living on nettles and mushrooms in Chinese caves, Hebrew prophets eating locusts and wild honey on the Sinai peninsula, elderly Brahmins leaving comfortable estates to wander the Bengali jungle.

I wondered if my motives for going into wilderness might be more obscure, and more profound, than I had realized. While part of me was going into the mountains seeking the pleasures of exercise, self-reliance, accomplishment, and natural history, it seemed that another part was looking for things of which I had only a vague conscious awareness, as though a remote mountain or desert releases some innate human behavior, a kind of instinctive predilection for the mysterious.

So many major structures of belief have arisen at least in part from experiences in wilderness. This was to be expected with the oldest structures, such as animism and shamanism, since the entire

world outside a Paleolithic camp was wilderness. But why should all the major religions of the modern world include a crucial encounter with wilderness — Moses, Jesus, and Mohammed in the desert mountains, Siddhartha in the jungle? And why should the predominant modern view of the origin and development of life have arisen from the five-year wilderness voyage of a Victorian amateur naturalist named Charles Darwin? There evidently is more to wilderness than meets the eye — more than water, timber, minerals, the materials of physical civilized existence. Somehow there are mental trees, streams, and rocks — psychic raw materials from which every age has cut, dammed, or quarried an invisible civilization — an imaginative world of origins and meanings — what one might call a mythology.

Placing Darwin in the tradition of Moses and Jesus may seem heresy from both the Judeo-Christian and scientific viewpoints, but I think the roles played by the three figures have been similar. They wrenched their respective cultures out of a complacency that amounted to self-worship and thrust them in new directions that (if not always entirely beneficial) enlarged the human perspective. Moses forced his society to accept a unifying law; Jesus forced his to accept the unity of all humanity; Darwin forced his to accept the unity of all life. I doubt whether any of the three would have been able to influence his society so strongly if he had not been fortified by a season in the wilderness.

Both religion and science are mythologies, in the sense that each provides the individual with an account of the origins and meanings of life. It seems to me irrelevant, in this mythological sense, whether such accounts are fact or fiction. They need only provide their believers with a workable key to life, an invisible world of origins and meanings to help them make sense of an often confusing, sometimes frightening, physical world. As I lay sick in the Siskiyou night, I was comforted by my thoughts of origins and meanings, as though my existence, weakened and isolated, depended on keeping an invisible world alive in my mind. My fear at being sick and alone magnified a process that goes on all the time in wilderness — when I saw the Siskiyou ridgeline, the unimaginably venerable forest, the bear tracks in mine. Wilderness generates mythological thinking; it leads the mind back to stories of origins and meanings, to imagining the world's creation. Physical wilderness may have shrunk vastly from



Moses' to Darwin's time, but the growth of mythic wilderness has been greater — from the seven days' creation of the Bible to the over four billion years of a precivilized, wilderness earth in evolutionary theory. As it shrinks before us, wilderness expands around us.

I can't find an early mythology that held that civilization came before wilderness. Universally, the gods created people out of raw matter, then gave them the tools of human life. Only in the very modern flying-saucer cults is there the idea that humans did not originate on wilderness earth, but were dropped here by a civilization from elsewhere. And even that extraterrestrial civilization presumably would have had wild beginnings. The presence of wilderness — of various lonely expanses of sky, water, rock, and soil — in so many creation myths supports the evolutionary idea that humanity did in fact arise from a thoroughly wild planet. Whether the myths originated simply from the fact that primitive people were surrounded by wilderness all their lives or from some racial memory of wilderness at the beginning of the mind will be an unanswerable question until we understand the mind better. But the powerful resonance of wilderness in my own mind — never having seen a wilderness or really understood what one was until I was in my twenties — leads me to suspect there is some kind of genetic circuit that lights up when a suburban animal is set down before a virgin forest.

If wilderness generates mythology, it also is shaped by it. Wilderness after Darwin, the wilderness I walk into, is very different from that of Moses or Jesus. Evolution is the great myth of modern times. There has not been such a compelling new one for thousands of years, and even those who would discredit it are subtly bound by it, forced to seek evidence of the immutability of species in the very fossil record that so powerfully illustrates that species evolve and become extinct. And, although the truth or falsehood of evolution is irrelevant to its mythological function, there is no denying that it has greater scope, intricacy, and coherence than older myths, just as modern civilization is larger and more complex than its predecessors. Older myths see the earth's history as a matter of thousands of years; evolution sees it as a matter of billions. Older myths see life's creation as a matter of days, often by some rational intelligence; evolution sees the creation of new living beings as never ending, except in some hypothetical limit of cosmic time — a bizarre and unlikely (from the common-sense viewpoint) process of random

molecular change whereby beings invisible to the naked eye grow with excruciating slowness into trees and people, which themselves eventually will grow by the same random process into things unimaginable by the human mind.

As with all new myths, evolution has grown from fundamental changes in human circumstances. Its roots lie deep in the decay of feudalism's reliance on the authority of received wisdom, and in the ferment of the pragmatic, skeptical, mercantile classes, who were open to a myth of continual change because, to them, change meant profit and improvement, not simply a falling away from Biblical or classical ideals. People have been finding fossils since the dawn of history, but they saw them as giants or monsters destroyed by the gods, not as inhabitants of natural landscapes ancestral to, though quite different from, the living world. It required the close observations of early geologists (who were looking for ways to improve agriculture and mining) to see that the bones were deposited in strata that became older, and more unlike the living landscape, the deeper they dug. The basic tenets of evolution were developed long before Darwin: that rocks relate the earth's history at least as reliably as scriptures; that present life is descended from the petrified bones and stems in the rocks.

Darwin's contribution to the science, and the myth, of evolution was the idea of natural selection and the struggle for existence. Darwin didn't prove that evolution occurs — the rocks did that — he showed *how* it occurs. Organisms evolve because population grows faster than food supply, and individuals better fitted to survive are more likely to leave offspring. Genetic traits that fit them for survival are thus favored, naturally selected, in the population as a whole, and the species eventually takes on the characteristics of the favored individuals. Natural selection explains why the trees growing in the Klamath Mountains now are not quite the same as those that grew in Alaska forty million years ago.

Darwin is not evolution's ultimate authority any more than he was its discoverer. Evolution has evolved, as all myths must. Past myths are psychic fossils. Darwin's natural selection doesn't explain how the genetic traits that imbued their possessors with superior fitness came into being. That required Mendel's work in genetics and the resultant concept of mutation, the idea that genes can change and thus produce entirely new characteristics in an organism. Further-

more, natural selection and gene mutation didn't explain how life arose in the first place, and they didn't fully explain how things as complicated as flowers evolved from things as relatively simple as algae. The Klamath Mountains are full of things that natural selection and mutation don't entirely explain. They explain why living oaks are different from fossil oaks, but they don't explain how oaks evolved from more primitive plants such as conifers. They operate too gradually to completely explain such enormous changes. Other concepts have arisen to try to account for the great leaps that life has taken: symbiosis, preadaptation, neoteny. These concepts are as picturesque as the most bizarre primitive lore, and in some ways just as mysterious.

Evolution has much in common with older myths. It tends to be cyclical, with successive worlds created and destroyed in satisfyingly catastrophic and mysterious ways. It is filled with colorful, well-loved characters. (There was a period in my childhood when I liked dinosaurs better than anything else in the world.) It is a handy way for older people to explain to younger ones how things became the way they are. (Given the instinctive curiosity of the young primate, this is no minor advantage.)

In some ways evolution has so far proved inferior to older myths. It lacks a clear ethical dimension, as evidenced by its misuse in brutal dogmas such as racism and social Darwinism. Nobody has figured out, as yet, ways to make concepts such as natural selection and mutation encourage people to be good, which is something older myths tended to do. Of course, older myths have been ethically misused too.

Evolution doesn't view earth's history as a conflict between good and evil. It does essentially view it as a conflict between life and death, between increased organization and more efficient energy use on the part of life, and an opposing tendency of nonliving matter to become disorganized and lose energy — entropy. But evolution doesn't see life and death as simple adversaries: life as good and death as evil. Life cannot triumph over death in evolution. They don't fight to win. As with some of the oldest myths, wherein the natural dualities of light and darkness, sun and moon, male and female, performed an eternal, amoral dance of opposites, evolutionary life and death are interdependent: two halves of the world. Evolution would be impossible if organisms did not die. Immortal

organisms would never surrender the planet to their descendents, and thus the natural selection and mutation by which sexual reproduction changes organisms couldn't work. Many more early deaths than long lives are required for evolution to function.

The centrality and indispensability of death in evolution can make it seem horrible, like some bloody sacrificial fertility cult. Evolution can seem a throwback to a very savage view of life. It's not as simple as that, though. Evolution is not only a battle of numbers wherein the fit survive and the rest get dragged out by the heels. There are other ways for life to evolve besides competition. The conventional Darwinian picture of an apparently peaceful landscape which underneath is a seething battle for survival is after all a picture, an artifact superimposed on physical reality. To the pre-Darwinian senses, a peaceful landscape is just that. Landscapes have evolved from cooperation among organisms as well as from competition. If it seems anthropomorphic to speak of the cooperation between trees and insects, is it any less so to speak of their competing?

Evolution also lacks something of the immediacy of older myths, wherein the world's creation and other significant events were thought to have occurred at familiar, still-existing places, so that mythical events were a part of everyday experience and could seem virtually contemporary. Evolution largely has been presented as a thing of the distant past, its main references to the present — fossils, petrified bones and footprints — having little significance to the average person until interpreted by the specialist. It is not precise enough as a myth (and may never be precise enough even as a science) to allow people to look at some familiar landmark and think: This is where the *Brontosaurus* made its last stand against the forces that exterminated it. Nobody knows exactly what the forces that exterminated the *Brontosaurus* were, for one thing, and the geological nature of the planet does not lend itself to permanent landmarks. Perhaps one of the things that repel many people about evolution is this remoteness, this apparent distance from human life. It can seem to belittle and mock the living.

I don't think the remoteness is inherent in evolution, though. Evolution is fully as operative today as it was in the *Brontosaurus*'s time, even though it operates so subtly as to be perceptible only to the informed eye. More important, a surprisingly large number of

the actors in various evolutionary dramas of mythic proportions are still with us, in the flesh as well as in the rocks. I don't know if the ancient Greeks actually saw nymphs and satyrs in their woods. I do know that there is a distinct possibility that modern people can see dinosaurs in *their* woods, and that there is no doubt that they can see creatures virtually identical to those that first populated the land a half-billion years ago. Every place on earth contains a treasury of evolutionary stories in its living animals and plants, for each is populated by a continuum of organisms that mimics the entire history of life, from the first cells to form in primal ooze, to the teeming invertebrates and fish of Paleozoic waters, to the first amphibians and insects on land, to the rich and diverse world of the dinosaurs — when redwoods grew in Greenland — to the drying, cooling world of the great mammals, our world.

The Klamath Mountains are an exceptionally rich storehouse of evolutionary stories, one of the rare places where past and present have not been severed as sharply as in most of North America, where glaciation, desertification, urbanization, and other ecological upheavals have been muted by a combination of rugged terrain and relatively benign climate. Klamath rocks are older than those of the California and Oregon coast ranges to the south and north or those of the Cascades to the east. They are more intricately and tortuously folded, faulted, and upthrust, forming a knot of jagged peaks and steep gorges less modified by civilization than other areas, even though they are only a day's drive from large cities. The Klamaths are not even very high as mountains go, with no peaks over ten thousand feet.

The relatively low elevation of the Klamaths, compared to the Cascades or Sierra Nevada, has caused them to be overlooked. Naturalists often say that the Klamaths are a combination of Sierra Nevada and Cascades ecosystems because the Klamaths contain species found in both other wilderness regions. This is a little like saying that a person is a combination of his brother and sister because he shares genes with both siblings. The Klamaths have a character of their own, although not perhaps as ingratiating a character as the graceful volcanic cones of the Cascades or the clean alpine country of the Sierra. There is something wizened about the Klamaths. Their canyons do not have sparkling granite walls and wide river meadows as do the U-shaped, glaciated canyons of the

Sierra. Klamath canyons are preglacial, and uncompromisingly V-shaped. They've never been scoured into spaciousness by the ice flows. They seem to drop down forever, slope after forest-smothered slope, to straitened, boulder-strewn bottoms so noisy with waters and shadowed by vegetation that they may bring startling dreams and uneasy thoughts to campers.

Early explorers were stymied by these canyons. In 1828 Jedediah Smith and his party of fur trappers gave up in despair when they tried to follow the Klamath River upstream from its confluence with the Trinity River. The terrain was too rugged even for those mountain men, who had walked from Oregon to Los Angeles in search of beaver. They didn't find many beaver in Klamath Mountain rivers, which are generally too rocky and turbulent even for those ingenious rodents. The fur trappers called the Klamaths "backward," a pretty definitive judgment coming from backwoodsmen who crossed the Sierra and Cascades, not to mention the Rockies, a half-century before the railroads.

More than any other wild region I've known, the Klamaths have a venerable quality which is not synonymous with "pristine," "unspoiled," or other adjectives commonly applied to natural areas. Certainly, the Klamaths are as unpolluted as any American place these days. But these adjectives imply something of the smoothness and plumpness of youth, whereas the Klamaths are marked by the wrinkles and leanness of great age. Although their peaks and high plateaus have been marked by glaciers, they are at heart preglacial mountains, with elements of flora and fauna that reach back farther into the past than any place west of the Mississippi River. The Klamaths seem so old, in fact, that I'd call them a grandparent of the Sierra and Cascades instead of a sibling.

This venerable quality is strongest in the region's National Forest wilderness areas: the Rogue River gorge and the jumbled red humps of the Kalmiopsis to the north, the jagged peaks of the high Siskiyou and Red Buttes, the huge massifs of the Marble Mountains and Salmon-Trinity Alps, the gentle but hulking summits of the Yolla Bollys to the south. (The Yolla Bollys aren't entirely within the Klamath Mountain geological province, but I include them because they're ecologically linked to the other ranges.) Wilderness in the Klamaths is still dwindling from logging and other developments, as it was when I found hiking trails so elusive in 1969, but I hope

enough will eventually be protected to assure they will remain an outstanding vantage point into what I perceived during my first visit as the fourth dimension of life.

With Klamath Mountain wilderness as a vantage, then, this book will try to see evolution not as an edifice of petrified stems and bones, but as a living continuum still linked with its past. I will try to peer into time's depths as I peered into the depths of my dreams. The place of the human in evolution is not unlike the dreamer's in the dream. We drift on the surface of a vast gulf of time in which we fitfully perceive the creatures below us, and we may feel afraid at our suspended position or reassured by the presence of other drifters (as Alice was comforted in Wonderland by the little animals that floated with her in the sea of her tears). Whatever we feel, dreamers and creatures both are caught in time's current, which indifferently carries the most primitive and advanced of organisms, and which sometimes abandons apparent paragons of development, such as the dinosaurs, for reasons that remain obscure.

Such obscurities may seem to doom the enterprise from the start. Evolution is almost as rudimentary a science as it is a myth. The fossil, the rock upon which the entire edifice is built, is a scanty and unreliable phenomenon. An estimated 1 to 10 percent of all species that ever lived have left fossils, and only an estimated 1 to 10 percent of *those* will ever be found. The origins of major organisms such as flowering plants, protozoans, and frogs still remain obscured by a lack of transitional fossils. A species such as the horse, the origins of which can be traced through a clear progression of fossils, is more the exception than the rule. Even evolutionary certainties have their doubtful aspects. The dinosaurs certainly existed, but there is still much disagreement among paleontologists as to their behavior, diet, metabolism, and ecology. To put flesh on bones is not as easy as museum exhibits suggest.

As the Siskiyou forest demonstrates, though, living worlds are not always so different from worlds of long ago. They are sometimes surprisingly similar. If it seems incredible to many people that prehistoric algae and worms evolved into trees and people, it seems just as extraordinary to me that many algae and worms hardly have changed in 500 million years. Everything alive is a living fossil, in a sense; so it should be possible to perceive much of life's history by imaginatively projecting living landscapes onto primeval ones,

much as the Greeks saw the mythical origins of their world in their living mountains and valleys.

The Greeks had a huge number of myths; each valley and island had its local pantheon. This is typical of the mythological way of thinking, and it holds true for evolution as myth. It's inaccurate to talk about a myth of evolution as though there were only one. There are as many myths of evolution as there are groups or individuals with differing responses to the scientific evidence. There is the establishment, mass-media myth, which presents evolution as a brisk upward sequence of floating, swimming, crawling, and walking shapes somehow leading inexorably to spaceships. There is the coevolution myth of the whole-earth counter-culture, which is just as progress-minded in its way as the establishment myth, but more democratic: it would have us take dolphins along on our spaceships. There is the recombinant DNA myth of the futurists, which would move evolution out of the biosphere and into the factory. Like the Titans from which the Olympian gods made the world, myth is huge and polymorphous. It can't be confined to the study of primitive and ancient societies. No sooner is a fact observed and recorded than it begins to be woven into myth's web of dream, imagination, and emotion. The bear tracks in the Siskiyou were facts that became myths.

My myth of evolution will be less orderly than some. It may be chaotic and devious, but this may be a more faithful reflection of reality than charts and graphs. Evolution, at least in the Klamath Mountains, is less a tidily consecutive array of increasingly advanced organisms than a leapfrogging mob of plants, animals, and dubious beings such as fungi, all earnestly photosynthesizing, feeding, respiring, and reproducing without much respect for hierarchy or direction. It is less a progression than a cyclic accretion wherein organisms appear or disappear for reasons that often are obscure or mysterious, and not readily applicable to scientific concepts. This is not to say that science is wrong, only that it is incomplete, as any scientist worth the name will agree. Whether a species as devious and chaotic as ours will ever achieve a complete science is in fact doubtful.

As told by its rocks and its living organisms, the story of life in the Klamath Mountains wanders in circles as often as it arrives anywhere, but considerable action and color tend to compensate for



this lack of plot. The characters are unruly, prone to abrupt appearances and disappearances, and unwilling to submit to dramatic unities. Often they will not leave the stage after a climactic scene, but lurk upstage, sometimes making rude comments on the acts that follow. Their lingering makes the story more complicated to tell with each successive scene, since the stage continually gets more crowded. There are elements of epic and tragedy in this confusion, but the overall impression is more of comedy, even buffoonery, than high drama, more *A Midsummer Night's Dream* than *Hamlet*.

A story without a plot is not an easy one to tell. Like earlier myths, though, evolution can be divided into a series of ages or cycles. As classical mythology divided earth's history into ages of gold, silver, and iron, so evolutionists have divided it into ages of invertebrates, fish, amphibians, reptiles, and mammals. I'm not going to follow these conventional evolutionary ages, however, for two reasons. First, I think dividing evolution in conventional ages places too much emphasis on animals, which is understandable since that's what we are, but which obscures the fact that one-celled organisms, plants, and fungi are more fundamental to the evolutionary process. Animals, particularly vertebrates, are relative late-comers and are still vastly outnumbered by other organisms. Second, the conventional evolutionary ages don't take into account the fact that evolution is an accretion as much as a progression. It isn't as though invertebrates were no longer required after fish evolved. Invertebrates are probably more numerous and certainly more diverse now than they were during the age of invertebrates. They have continued to evolve, and many are just as "modern" as mammals, some more so.

If I'm going to approach the earth's history as embodied in something as hard to explore as the Klamath Mountains, I'll need more universal elements to symbolize the successive ages, elements as weighty and substantial as precious metals. So I'll use the most basic elements of the Klamath landscape to organize my untidy evolutionary story — rock, water, trees, and grass. Each has dominated the planet at some time: rock before life; water during life's several billion years of early development; trees since life emerged from water; grass since the planet began to get drier and colder, in the past thirty million or so years. Together, they still dominate the planet. Rock shapes the landscape; water erodes from rock the