Impressions of the North Cascades

***Essays about a* Northwest Landscape**

Part I: Landscapes of Memory

Who Walks on the Ground

BOB MIERENDORF

A "Ferocious Wildness"

The scenic grandeur of the North Cascades will take your breath away, as it did Henry Custer's on July 18, 1859. Perched on Middle Peak, above the Little Chilliwack River, the modest Custer became the first to write about this striking corner of the range:

I leave it to a better pen to describe the sublimity of true Mountain scenery in the Cascade Mts. . . . it can not be described. Nowhere do the Mountain masses and peaks present such strange, fantastic, dauntless, and startling outlines as here. Whoever wishes to see Nature in all its primitive glory and grandeur, in its almost feroci[o]us wildness, must go and visit these Mountain regions.

Working as a surveyor for the U.S. commission created to establish the international boundary along the forty-ninth parallel, and guided throughout by Coast Salish people familiar with these mountains, Custer left an account of his considerable travels through subalpine and alpine terrain. [1] One hundred and fifty years later, the land is managed as National Park Service and United States Forest Service wilderness, where scenery and wildness are protected values.

But there is another, quite different view of this landscape. The spectacular scenery and raw wildness are only the outer wrapping that packages a story of bygone people and ancient landscapes spanning the last 11,000 years. The story is unwritten, yet it is chronicled, literally, underfoot—beneath the ground we walk on. This ground is the upper, biologically active mineral layer of the planet Earth, the foundation for the habitats of all terrestrial beings, including humans. Since our emergence and occupation of the planet, we have left evidence of our passing. We have built and modified and left our refuse everywhere, and the North Cascades is no

exception. Here, in Custer's "ferocious wildness," we find in the ground a narrative of people deeply involved with this landscape for millennia.

The human story is not the only one found in this ground. Few are aware that today's Washington State was the native home of animals such as buffalo, camels, elephants, and giant ground sloth; that pronghorn antelope and mountain sheep were abundant in the arid lands east of the Cascades; that arctic tundra blanketed lowlands; or that a native nicotine tobacco grew widespread in areas of eastern Washington. Since before the last great ice advance 15,000 years ago, the landscape has evolved in a swirl of climatic shifts, geologic events, biological adaptations, and human interactions. Viewed from this time span, today's scenery is as ephemeral as the climate it echoes, but in the ground, virtually every being, whether it be plant, animal, insect, or human, leaves physical clues of its existence.

There are various ways to acquire knowledge about the Earth's past inhabitants and their relationship with their environment. One of the easiest would be to ask them, but this presents obvious difficulties. Much ancient knowledge has been passed down through Native American languages and traditions. A story of the ancient past of the Pacific Northwest is told by Native elders, embedded in their traditions of carving cedar, weaving bear grass, hunting whales, netting salmon, or through their mythology, which tells of great floods and the origin of the mountains. Their ancestors, they say, were here forever.

A vital contribution of archaeology as a method of back into the story, to recreate the scenery, to place past and present human-environment interactions into a connected whole to which we can relate. The archaeologist uses the logic and techniques of science to gather evidence and form conclusions, evidence that is often buried under the surface of the earth. We will never have complete knowledge, but the wisdom of Native culture, combined with archaeology and supporting studies from ecology, botany, biology, and earth sciences, offers the fullest picture yet of human occupation of the Pacific Northwest. In what follows, we will look under the grand North Cascades scenery, pulling back layers of earth to distill images of a past we can never directly experience. This endeavor will take us to an assortment of archaeological sites, whose material remains and artifacts will show the interdependence of cultures and people with their environment. The fact of this interdependence will be accepted as a truism and requires no repetition. From each archaeological site we visit we will learn lessons for an enlightened understanding of the North Cascades landscape and the complex history of human-environment interactions. This understanding will help us live today and tomorrow as part of this wild place.

Miskaiwhu

One of the first places I explored in the North Cascades was the mouth of Goodell Creek in October 1984. As part of my job as archaeologist, I was asked to evaluate the condition of an archaeological site recorded by a colleague nine years earlier. On that first visit, the site appeared to me much as he had recorded it—a scatter of fragmented stone tools at the base of an eroded riverbank, certainly prehistoric in age, but with actual dates of occupation unclear. It had probably been a short-term campsite. In subsequent years, during frequent visits to the site to monitor the erosion, I began to develop a familiarity for this place and to appreciate its qualities: its access to the Skagit River, the salmon spawning along its shores, and the floodwise cedars

rooted in its banks. It had been more than just an ephemeral campsite, and I understood that it was not just another nameless riverbank. But how little I really knew at that time! It was not until 1991, when we excavated through ancient soils covered under layers of Skagit River flood sands, that I began to understand the story within the site.

Here we found four old soils, each marking what had been the ground that Upper Skagit people lived on until the next layer of flood sands buried it. We found artifacts extending to a depth of more than six feet below the modern ground. Each soil appeared as a black, charcoal-stained matrix full of charred salmon bones, cooking rocks fractured by heat, and chipped stone tools. A handful of the blackest, organic-rich matrix from one of the layers, when squeezed tightly in a fist, left a slippery film, a mixture of fish oil and campfire creosote. We had found the remains of an Indian fishing camp that had seen repeated use. Above each ancient ground surface had been a salmon-drying rack, long since disappeared but for the darkened stain where one of the rack posts had stuck in the ground. Radiocarbon dating of the charcoal indicated that salmon had been dried here for the last 660 years.

Who were the people who had smoked all those salmon? There are no written or oral accounts of people fishing or smoking salmon at this particular location, but Upper Skagit Indian elders told, over the years, of the Mis-skai-whwu (or Miskaiwhu), the name of the Upper Skagit band that permanently occupied the area in the nineteenth century and before. They were the Skagit Indian bands living farthest upriver, their villages scattered from the vicinity of today's Marblemount upstream on the Cascade River to near the mouth of Irene Creek, and upstream on the Skagit River to Newhalem. Little more is known about these people, but no doubt they are the descendants of those who smoked salmon at Goodell Creek hundreds of years ago.

The Miskaiwhu at Goodell Creek knew when the fish would be there, when the river would yield them. They knew much about the climatic muscle of the Cascades, and their vast experience of this place, if we could tap it, would tell us much about coping with that muscle. Our weather and flood records of a mere century are a start, but from archaeology we can gain more understanding of how to live with the powerful forces here. We are learning more about these Miskaiwhu who lived around Newhalem. We know they hunted mountain goats in these mountains 1,400 years ago, they carved decorative objects from the local varieties of Skagit soapstone, and they shaped wood with sharply ground adze blades. They manufactured some of their arrow tips from obsidian outcrops located in the surrounding mountains, yet they made others from obsidian taken from today's central Oregon hundreds of miles to the south. Remains of their ancient campsites and artifacts have been found throughout the adjacent mountains, well above tree line. Archaeology demonstrates, much to our surprise, that these early people traveled all over this rugged and, in our view, in hospitable landscape. They knew how to make their living from it.

But what happened to the Miskaiwhu? At the Port Elliott Treaty of January 22, 1855, convened by the territorial governor, Isaac Stevens, their chief, Ki-ya-hud, refused to sign. The Miskaiwhu band, as a member of an independent nation, never willingly gave its homeland to the territorial government that Stevens represented. As explained by Martin Sampson, "Early in the 1890s the remaining members of the upper river tribes, the Mis-skai-whwu and the Sauk people, under the leadership of Captain Moses Tiatmus and Chief Jim Brown, settled in the Suiattle Valley." [2]

Today's Miskaiwhu descendants, along with those of the other ten Skagit River bands, continue to reside in their traditional Skagit River and Sauk River Valley homeland.

Mountain Terrain

The Miskaiwhu, as with all other Indian bands native to the Pacific Northwest, subsisted as foragers by fishing, hunting, and gathering from the variety of natural resources available in diverse environments. Societies that subsist through foraging, distinct from agricultural or industrial economies, are closely adjusted to natural cycles in the seasonal abundance and geographic distribution of the resources they rely on for food, clothing, shelter, tools, and medicines. As a result, each band or village necessarily develops an intimate knowledge of the natural history of its home territory, and accommodates itself to ecological conditions affecting its survival. This means, also, that the economic adaptation of each band possesses unique qualities mirroring the particular environmental characteristics of its home territory. Given this dependency of foraging bands on their environment, we might expect great variability in how bands of the prehistoric past have adapted to the North Cascades. In this regard, one of the fascinating subjects of archaeological inquiry in the Pacific Northwest is the discovery of the sequence of cultural adaptations and transformations in Native societies during the changing climates of the last 11,000 years and across the diversity of Northwest landscapes. For the North Cascades, we are challenged to learn about human-environment interactions from the first inhabitants, whom Henry Custer (himself a mountaineer from the Swiss Alps) characterized as "true mountain Indians."

My interest in mountain people and their relationship to the North Cascades environment began about the same time that I initiated coursework toward a doctoral degree in anthropology. At the time, there was little known about human use of high-elevation and interior landscapes of the Cascade Range or other Pacific Northwest mountain ranges—they were prehistoric *terrae incognitae*. This is not surprising because the interest of professional anthropology and archaeology has historically focused on lowland, riverine, and coastal environments. There was no viable notion of Native mountain cultures—the recognition that some Native American groups might be so mountain oriented as to deviate from the classic characterizations of Northwest Coast or Columbia Plateau culture types. Although a few archaeologists had worked previously in the North Cascades, only a handful of prehistoric sites had been found and documented. The combined wisdom gleaned from ethnographic and historic documents was hardly better, with much of it contradictory. Yet, humans are known to have inhabited all but the most severe climatic zones of the world. I felt the urge to acquire a familiarity with the mountains that can only come from living and working in them, and walking on the ground of the Miskaiwhu and numerous other bands. In a sense, pursuing my degree had been getting in the way of my education; I left graduate school and moved to the North Cascades.

Although all cultures leave signs of their presence in the earth, the signs can be difficult to find and decipher. Tangible remains of pre-A.D. 1750 foraging cultures of the densely forested Cascades are, most often, concealed by vegetation. At their most subtle, the remains are visible, for example, as a handful of sharp-edged, flaked stone pieces marking a hunting station used a few thousand years ago. Occasionally the evidence is conspicuous, as at quarries where the ground surface is piled with shattered stone and broken hammerstones, or at pictographs along

Lake Chelan, the most prominent of which is an array of figures guarding the mouth of the Stehekin River. Doing archaeology in these mountains, as I learned in the systematic searches I began in the 1980s, was strenuous—the ground yielded signs only to much patience and sweat. Soon, the demands of the work itself became the lesson. Places like this exact much from their human occupants, no less of archaeologists or hikers than of the early people whose paths we follow.

One dimension of the North Cascades that affects all who travel there, now or in earlier times, is terrain. By *terrain* I mean not just the ground we walk on, but the surrounding topography and all that grows and resides on it. All terrestrial mammals, including humans, must cope with the variables of terrain, and as we study how this coping has occurred we understand the adaptations, social and otherwise, of many species. For foraging human beings, and later non-Indian explorers, trappers, miners, and modern travelers such as tourists and archaeologists, the challenge has been how to move themselves and whatever they valued through deep, rocky gorges, around cliffs, and over high passes in snow, rain, wind, heat, and cold. All who would travel here must experiment with the many subtleties underfoot—rock slope and texture, hardness of snow and tenacity of brush, and with prodigious barriers of fallen old-growth tree trunks, and cliff faces, and raging streams. The prehistory and history of travel across this landscape is revisited through labor and exertion. For well-being, we all learn to choose terrain that requires the least amount of energy expenditure now, saving some for later. It is best not to rush, or to expect too much. Alexander Ross expected it would be easier, and I consider his July 29, 1814 comment an historic awakening to the North Cascades terrain. His first-recorded, trans-Cascades crossing was an unpleasant experience. Heading west, descending into Bridge Creek Valley from the Twisp River Valley, he wrote, ". . . forests almost impervious, with fallen as well as standing timber. A more difficult route to travel never fell to man's lot. . . . The surface of the earth appeared in perfect confusion; and the rocks and yawning chasms gave the whole an air of solemn gloom and undisturbed silence." [3]

We are, in a sense, taught how to behave by the environment we encounter in a place like these mountains. The lessons learned by ancient travelers, or explorers like Ross, differ from those that come to travelers today. Our notions about travel through the North Cascades reflect our experiences, each varying according to our mode of locomotion, be it along Highway 20 at 50 miles per hour, or above in a jetliner approaching Sea-Tac Airport, or from hiking a trail. These experiences forge a perception and context through which we assess our own and others' capabilities in traveling these mountains. For most, hiking today in the Pacific Northwest is done across a landscape of maintained trails, with designated campsites, freeze-dried foods, high-tech camping gear, and most recently, a radio backup. We are destined to perceive terrain and to cognitively map the landscape differently, each according to our experience. How different from the modern perspective is that of a forager, especially one who traveled lightly with simple gear made from plant and animal materials, and used stone tools; a traveler who manufactured and repaired gear along the way, and used inherited, ancient cultural recipes and wisdom for preparation of food and medicines acquired from the immediate environment. We should remind ourselves that, regardless of ethnic or cultural heritage, we all descended from forager ancestors mentored by wilderness terrains.

Old cottonwood near the Cascade River

In considering what prehistoric travel and camping in the North Cascades must have been like, we must look at the social and technological strategies humans devise to get across terrain. We are foremost a species of terrestrial travelers. For simplicity, envision two extremes that encompass the full range of accommodations made by traveling parties to achieve certain levels of mobility. Social considerations often include age, gender, kinship, and purpose of the trip.

Material considerations include the supplies and gear needed to sustain the traveling party, anticipated modes of travel and any surpluses. A knowledge of the terrain is a highly valued commodity.

The first kind of traveling party is the slowest and most secure of the two. It consists of a foraging group characterized by mixed gender and age—members of nuclear and extended families, grandparents to grandchildren—who come together to spend a part of the summer to get berries, roots, trout, and basket materials, and to hunt deer, elk, bear, and birds. Such groups must have traveled with deliberation most often choosing the paths of least resistance, with careful selection of overnight camps. They carried with them most of the tools for processing resources, and baskets and leather bags for gathering and transporting what they processed. Always important was the need to be opportunistic, be it for the chance encounter with a herd of elk or to heed an abrupt weather change forcing a bivouac for extra days. For such a group, the rate of travel was unimportant; cooking, consuming, or packaging the products of hunting, gathering, or fishing forays were of primary importance. So also was the passing to younger generations of traditional knowledge carried by the elders.

Much in contrast, the second kind of traveling party is small and highly mobile, carrying relatively little gear. Such a party consists of one or a few members, spanning one or two generations, with gender composition dependent on the purpose of the trip. A group of women, for example, depart a base camp in the river valley, ascend a ridgeline a few thousand feet to subalpine meadows, where they collect wild lily bulbs and medicinal plants, returning to their camp in the evening. Or a husband and wife travel over Cascade Pass to visit relatives, carrying dried food and gear sufficient for them to move steadily between any suitable overnight stops along the way. If they carry too much, and find that their snowshoes are not needed, they cache them under a pile of rocks in talus, awaiting the return trip.

A war party constitutes another kind of travel party. In actuality, there existed any number of travel party combinations, each accommodated to purpose and terrain, and exploiting a large social and technological repertoire of adaptive techniques. Consider mats, for example: made by sewing together or weaving reeds, they were used to line canoes, as bedding, to cover gear, and to cover huts; a rolled mat was a ubiquitous traveling item. [4] For mountain travel, leather clothing provided the most protection against thick brush. For descending steep snow slopes, a stick dragged in the snow was used to control the slide (long before today's equivalent glissade with ice axe!). Much of the archaeological record in the North Cascades reflects human involvement with terrain, which leaves telltale signs in the discarded stone tools used for manufacture and repair of gear, and the abandoned hearths where food was prepared and consumed.

The interaction of humans and terrain is apt to leave its mark in diverse ways. An archaeologist studies each terrain to reveal the combination of events that express the unique cultural and geological history of a place. All places are part of a cultural landscape. In the core of the North Cascades, strewn about the mountain sides above today's Ross Lake, is a cultural landscape marked by prehistoric rock quarries used for thousands of years by various Indian bands. The variety of quartz from these quarries, called chert, was used to manufacture an assortment of tools for cutting, piercing, scraping, drilling, and engraving. In the decade since the discovery of

these quarries, this Hozomeen chert has been found in archaeological sites throughout the region. It was well known for millennia to all the bands who visited the North Cascades. Artifacts made from it were carried by these people to the head of Lake Chelan, across Cascade Pass, and to Puget Sound. There is a geography in these chert tools, scattered across a part of the Cascades, that validates only one of a myriad of cultural landscapes of the past. As further validation, a linguistic fragment of this landscape endures today as the word *Hozomeen*, which is derived from the Nlakapamux (Lower Thompson) language, and means "sharp, like a knife." [5] Now it names a mountain, a lake, a creek, and the stone that was used to make knives.

Our investigations showed that the quarries had been worked for at least 8,000 years, with the heaviest use occurring between 5,000 and 3,500 years ago. At the largest of these quarries, five distinctive terrain types revealed how the quarry was used. The most common terrain here is the steep, forested, brush-covered slopes where the stoneworkers searched for usable boulders of chert. Another terrain is bumpy and bouldery where an earthslide buried a 4,500-year-old workshop in which the chert was shaped into rough, unfinished blanks; other workshops are on small flats here and there on the mountainside. A smooth bedrock overlook served as an overnight campsite 300 years ago. But the most conspicuous terrain is one whose origin is due exclusively to human activity. It consists of thick deposits left over from cleaning and shaping chert fragments. In one place this debris measured 6 feet deep—a tightly packed mass of discarded chert, hammerstones, and broken tools, all mixed together with small pockets of soft, dusty sand of the Holocene. The radiocarbon age of the charcoal from this depth is 7,600 years old; this is the oldest date from an archaeological site anywhere in the North Cascades. [6]

The origin of the dust and sand is uncertain, but it may derive from a period when the Pacific Northwest climate was warmer and drier than any time since written records have been kept. The evidence for climatic changes during the span of time that people used the quarry is irrefutable. In rhythm with the climate, the terrain changed, but the people continued to come for the chert. We have yet to understand the extent to which mountain lifestyles were affected by the changed climate and why use of the quarry seems to have accelerated starting about 5,000 years ago. Only in the last couple of hundred years was the quarry abandoned, its stone replaced with metal introduced by people from across the oceans.

Holocene Cultural Landscapes

A most engrossing problem in Northwest archaeology involves tracing the evolution of cultural adaptations, which are woven through a fabric of changing Holocene landscapes. This word *Holocene* is applied to the last 10,000 or so years to denote the time period following the retreat of glacial ice that had covered Puget Sound and most of the North Cascades. Although the Holocene persists to the present, it has experienced climatic shifts that by today's standards are dynamic. Just as dramatic are the configurations that cultures have adopted in response to landscape changes initiated by major climatic events. The Native foraging adaptations observed by the first European people are not the same as those of 3,000 or 10,000 years ago. Instead, there occurred successive transformations in the cultural relationships among bands, to each other, and to their environments.

One of the most fascinating of these cultural phenomena occurred as the Holocene began—the initial occupation and exploration of the Pacific Northwest by nomadic hunters in the newly deglaciated landscape. The Pacific Northwest at the close of the last ice age sustained herds of now-extinct herbivores, including elephants (mammoths and mastodons) and buffalo (more correctly, bison), that in turn supported sizeable populations of large predators, including wolves, cats, and bear. [7] The land was open, much of it nurturing steppe and savannah, and at higher elevations, a patchwork of conifer forest and tundra; the large old-growth forests of today did not exist. [8] Not surprisingly, subalpine and alpine areas of the North Cascades are the closest modern analogs we have to experience what it must have felt like to travel through such a landscape.

These first nomadic hunters are an enigma in the evolution of Cascade mountain cultures. An astounding discovery was made in 1987 in an East Wenatchee orchard, tucked down in the lowlands along the southeast foothills of the North Cascades. Only a few feet below ground level, packed in the sand-swept top of a late-glacial riverbed, was an undisturbed cache of bone and stone tools of Clovis hunters—*Clovis* being the name given by archaeologists to one of the earliest documented New World cultures—who roamed North America between 10,500 and 12,000 years ago. Their bone tools, of uncertain function, had been made from the leg bones of mammoth. Stone knives, spear points, and scrapers had been shaped from gemlike, brightly colored agates. The distinctive Clovis knives and points from this site are the largest known to North America, and there is no such Clovis site recorded elsewhere in Washington. Yet, the widespread presence of these people is marked by a scatter of isolated Clovis points found here and there, on either side of the Cascades, suggesting they hunted across the range. A single Clovis point found on the ground near Cle Elum supports this suggestion. [9] A characteristic of the Clovis lifestyle was great mobility. Individual bands traveled many hundreds of miles across vast areas of land. Another is the gemlike quality of rock types they used, and the workmanship of the tools made from them. What happened to the Clovis people is unknown, and their relationship to subsequent Pacific Northwest cultures is a mystery. All that is certain is that, with the extinction of the large, late-glacial herbivores, this specialized hunting economy did not sustain itself. These hunters were probably the first to visit the North Cascades wilderness.

Following Clovis, a more diversified hunting lifestyle persisted for thousands of years. Native cultures of the Cascades between 5,000 and 10,000 years ago subsisted in a climate significantly drier and warmer than now, unlike any modern equivalent. It was a time when the relative positions of the sun and earth were skewed by today's standards, resulting in warmer summers and colder winters. [10] Early Holocene forests west of the Cascade Crest were open and parklike, with large prairies and savannah, a favorable environment for herds of ungulates such as deer and elk and the foragers who hunted them. Archaeologists have struggled in their attempts to understand this cultural pattern because of poor preservation of the sites they occupied. Time, weathering, and all the processes that scar the Earth's surface have ravaged these sites left by small, nomadic groups of people. They hunted and gathered the year around, with no reliance on stored food. Their residences were small and temporary, leaving relatively little in the ground for study but tools of stone: spears, knives, scrapers, hammerstones, and the debris from their manufacture. Although their overall population density was low, groups practicing this economy left sign across the whole range of landscapes—coastal, mountain, and intermountain.

By 5,000 or so years ago, they began to adopt strategies fine-tuned to specific marine, riverine, grassland, and montane ecosystems. A major cultural revolution was beginning.

Prior to 6,000 years ago, old-growth Douglas-fir and hemlock forests did not exist in the Pacific Northwest, but since a cooler and wetter climate set in 5,000 years ago, prairies have shrunk in the Puget lowlands at the same time alpine glaciers have enlarged in the North Cascades, and continuous forest has extended for the first time across most of the Pacific slopes of the Cascades. Adjusting to population growth and a decrease in prime ungulate habitat, foraging peoples resorted to entirely new social accommodations, and the relationships between culture and environment were transformed. The most fundamental change was from a nomadic lifestyle to one that was much more sedentary, along with a heavy reliance on stored food for winter survival.

To better understand this change, compress the last 11,000 years of cultural activity into a ten-minute time lapse, and these last few minutes will appear to erupt in a frenzy of human activity. The Northwest soilscape today is littered with the physical remains of this Holocene legacy, encompassing a fluorescence of technologies unlike any before. These remains include the first substantial dwellings, large shell middens, cooking pits and campfires, and storage facilities. Large villages and communities appeared. Populations adopted a wider variety of social and cultural accommodations, many of them typical of complex cultures, including class and rank, craft specialization, and sophisticated art styles. Exchange was intensified; foods, utensils, raw materials, shell money, and slaves became items of commerce. The landscape became more intensively lived on, with more people subsisting on a wider range of resources from within a smaller geographic space. Viewed across the entire Holocene, the relative recentness of this sedentary lifestyle renders its remains more visible, closer to the surface, less altered by the past, and yet more susceptible to the earth-moving ravages of the present. In the North Cascades, much of the mountain terrain where such Holocene cultural transformations took place is preserved underneath magnificent mountain forests, designated wilderness by an act of Congress. Ironically, the complexities of eleven millennia of human habitation on the landscape were far removed from the legal minds that established this wilderness.

Finally we reach the brief period in this landscape known as recorded history, which begins with seafaring expeditions of the eighteenth century. This period marks the most revolutionary transformation in Native cultures of the New World. From an anthropological perspective, prehistory ended when old-world peoples entered the Pacific Northwest in force, beginning about A.D. 1780, just in the last 15 seconds of the time-compressed Holocene. Shortly thereafter the cultural landscape underwent one of the most dramatic transformations seen in recent world history. The Pacific Northwest is richly endowed with historic documents, written and photographic, of the ensuing colonization and upheaval of Native cultures. So endowed too are the earth's ancient landforms, where introduced technologies and exotic adaptations must necessarily leave their droppings, curated within the topsoil. First to appear are iron and glass artifacts in the form of knives and trade beads, thimbles, bells, brass buttons, horse bones, lead balls, and Indian mass burials, followed somewhat later by tin and ceramic, cans and cookware, chisels and gold pans, plows and harness buckles—and on to the artifacts of the present.

Wilderness Past and Present

During his 1850s travels through the Cascades, George Gibbs was a keen observer of Native peoples and terrain. Although he saw only a fleeting part of this major cultural transformation, his record of the interaction of the Native people with the North Cascades environment are precious. Most revealing, in my view, are his direct observations from the 1850s about the effects of European trade on travel and trails in the mountains:

In former times, before the diminution of the tribes and the diversion of trade to the posts, there were numerous trails across the Cascades by which the Indians of the interior obtained access to the western district. Of late, many of these have fallen into disuse, becoming obstructed with timber and underbrush. . . . In fact all their trails through the forest, though originally well selected, have become excessively tortuous, an Indian riding around the fallen trunks of tree after tree sooner than clear out a road which he seldom uses. [11]

In essence, Gibbs recognized a relatively subtle effect on the mountain terrain after hardly 100 years of European contact. His use of "riding" was certainly intended, as by this time Indian people from both sides of the Cascades were regularly crossing the crest on horseback. One who did this, in August 1882, was explorer Henry Pierce, who came up the Stehekin River Valley and over Cascade Pass; he descended the Cascade River to the site of today's Marblemount. Here, the party was ferried across the Skagit River in the dugout canoes of an elderly Indian and his family. Pierce recorded the reaction of the Indians to his arrival:

They refused at first to believe that we had arrived from the summit, the old man, apparently 70 years of age, claiming that he had never seen a white man go or come that way, and that it was impossible for any one but an Indian to keep the trail. [12]

This statement provides us with a cultural metaphor for past and present wilderness—Native American and European. Barely 100 years after these thoughts about "keeping the trail" were expressed, and with little awareness that the land had a prior cultural heritage, a new nation's government designated the land wilderness because it was perceived as "unspoiled by the hand of Man." To my knowledge, there is no Salish linguistic combination comparable to *wilderness*. It is unlikely a linguistic counterpart would have been necessary, considering that the entire Northwest cultural landscape, extending far beyond the Cascade mountains, had evolved in response to wilderness ecosystems over the previous 11,000 years. If we truly seek to understand wilderness, we must become open to the existence of many past cultural landscapes, and we must regain the knowledge of lost ethnoecologies built on a heritage of wilderness living.

My archaeological explorations of this landscape yield many lessons, but the most important involves scale of human activity, and it is widely overlooked by people who today interact with the North Cascades. The lesson is that the scale of human population here and manipulation of the landscape determine how we understand the nature of this place. When foraging people lived on this land, their numbers were low and their impacts minor. Today, though few live on the landscape and know it intimately, the scale of human activity around it, and the perception of it as a natural resource, have effected profound change. For 11,000 years human alteration of the landscape was minimal—a quarry, path, village, or fishing site here and there. But in the past 100 years the scale of human activity has grown, and the cumulative effects of our industrial technology have altered fundamental components of the ecosystem. The water, forests, wildlife

communities, even the air have been profoundly changed. Natural events such as floods, droughts, wildfires, and earthquakes have taken on new significance as population density has grown. People have coped with such events for over ten millennia, but today the scale has changed. Our relationship with the landscape is more uneasy than it has ever been.

Wilderness keeps open a window to the past. Considering terrain, in another way, links past and present wildernesses, if only because traveling through it appeals to our direct experiences. And we need to experience it lest we forget our hominid upbringing, for no matter who we are and where our ancestors came from, we are all descended from foraging peoples adapted to the Earth's surface. From infancy, each of us is equipped by heritage with the ability to "map on" to the terrain immediately surrounding us. To experience travel in the North Cascades wilderness is a realization that natural landscapes are where humans can reaffirm an innate awareness and appreciation for the ecological complexities of plant and animal communities in which we hold a lifelong membership. Traveling across North Cascades terrains dictates that we will adhere to the rules imposed on us by forest, slope, and glacier. There is a universality to the human living experience in this landscape, for it transcends time and culture.

Old Earth

Along the Skagit River, near my house, I walk about on new brown sand dropped by the November 1995 flood. Unlike the 1990 floods, this one advanced and peaked so quickly, and so much snowmelt flushed down the mountainsides, that it carried trees, gravels, and soil together. Although the fall's leaves on this day lie thick on the floor of forests above the flood level, hours after the flood subsided I stroll the floodplain on a soft carpet of sand, its thickness leveling the uneven forest floor in some places, and in others mounding streamlined sandbars. This new terrain is hardly 24 hours old, with not an autumn leaf visible on the fresh sand ripples. Salmon parts and carcasses are strewn about and dangle from branches above the ground, imparting an overriding aroma to the scene. The wet leaves hang like laundry on the branches of alder and salmonberry, marking the height of the flood waters, over 6 feet above the forest floor. I begin to feel this is only a subtle reminder of the magnitude of floods of the prehistoric past.

I think of the Miskaiwhu people, for it would be to our great benefit to know their experiences with the great floods. Such floods are believed to have occurred during the Little Ice Age, a climatic event that, glaciologists tell us, began sometime in the fourteenth century and lasted for roughly 500 years. Our modern climate records, upon which many land-use plans and decisions are based, were compiled after the Little Ice Age had ended, about A.D. 1850. Around the world, high mountain regions at this time, including the North Cascades and the European Alps, experienced a significant expansion of alpine glaciers, in some cases a greater expansion than any time since the beginning of the Holocene. Historic records from European mountain communities indicate that the magnitude and frequency of Little Ice Age floods and avalanches far exceeded those of modern and medieval times. No doubt the same occurred in the North Cascades, where the Miskaiwhu ancestors thrived, and buried beneath the sands deposited by Little Ice Age streams are the ancient soils upon which they dried and smoked salmon. We have much to learn. We must not, as a culture, treat the brief snapshot of the last hundred years as representative of what environments always were, or will be. We must look more at the ground.

BOB MIERENDORF is a National Park Service archaeologist and has been working in North Cascades National Park since 1987. His work has drastically changed thinking about the interactions of prehistoric peoples with the North Cascades landscape. He is a specialist in the adaptations of mountain peoples.