

one makes bad trails. When they get in a row, they trot, going from place to place, like a line of ducks. I've had trails of them wore out a foot deep.... Snakes leave a trail when they cross a cotton patch. Especially rattlesnakes. We'd track them down and kill them bastards..."

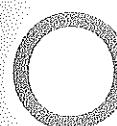
This was not the first time I'd heard Walker mention an animal making "bad trails," but it jarred me nevertheless. Some environmental preservationists I've met frown upon human trails, which they view as blemishes on the land, but they tend to regard animal trails as natural and good. As a lifelong hunter, Walker sees things differently. He seems to make no differentiation between the trails of humans or any other animal—a rut is a rut. And as the last three days had shown, for the hunter or for the hunted, a rut can be one's downfall.

He went on to list various other trail-makers: raccoons, skunks, turtles, muskrats, minks, armadillos . . .

"I reckon nearly every kind of animal will follow a trail, because it's just easier to navigate," he remarked. "Like the buffalo trails. Most of the time, it's easier walking."

"But," he added after a lengthy pause, his voice brightening to a new thought, "I guess people leave the most obvious trails. Like this damn interstate highway here. Shit, if people cease to exist, somebody could come back here ten thousand years later and probably find remnants of this concrete bridge. So we leave the most destructive trails, I think, of any group of animals."

CHAPTER 4



ONE FROST-LACED fall morning, I went trail hunting with a historian named Lamar Marshall. He was slowly piecing together a map of all the major footpaths of the ancient Cherokee homeland, and he had a new route he wanted to inspect. Wrapped in layers of warm clothing, which we would gradually peel off as the day wore on, we walked down a gravel road through the forests of the North Carolina foothills. The sky was pale, cool, and distant. Down the hill from us ran Fires Creek, which slid southward to meet the fat, muddy tail of the Hiwassee River.

Few Americans can say with any certainty that they have seen an old Native American trail. But almost everyone has seen the ghost of one and even traveled along it. For example, Marshall told me, the highway we'd taken to get to reach these mountains had once been a noted Cherokee trail, stretching hundreds of miles from present-day Asheville to Georgia. The next road we turned onto had been a trail once, too. As had dozens of other roads in the surrounding hills.

Marshall estimated that eighty-five percent of the total length of

the old Native American trails in North Carolina had been paved over. This phenomenon generally holds true across the continent, but more so in the densely forested east. As Seymour Dunbar wrote in *A History of Travel in America*: "Practically the whole present-day system of travel and transportation in America east of the Mississippi River, including many turnpikes, is based upon, or follows, the system of forest paths established by the Indians hundreds of years ago."

That system of paths is arguably the grandest buried cultural artifact in the world. For many indigenous people, trails were not just a means of travel; they were the veins and arteries of culture. For societies relying on oral tradition, the land served as a library of botanical, zoological, geographical, etymological, ethical, genealogical, spiritual, cosmological, and esoteric knowledge. In guiding people through that wondrous archive, trails became a rich cultural creation and a source of knowledge in themselves. Although that system of knowledge has largely been subsumed by empire and entombed in asphalt, threads of it can still be found running through the forest, if one only knows where to look.

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Marshall did not look like any historian I had ever met. He had leathery skin, gray stubble, and two wide-set, sun-narrowed dashes for eyes. From crown to cuff, he wore mismatched camouflage: a camo trucker cap, a camo backpack, and a camo karate gi over a pair of camo cargo pants. Any time I wanted to hear about a new chapter of his life, I needed only point to a garment and ask if there was a story behind it. His trucker's cap read "Alabama Fur Takers Association," an organization for which he, a former trapper, used to serve as the vice president. Around his neck, he wore a beaver skin pouch he'd bought while stocking the trading post he used to run. Beside the pouch hung a sterling silver medallion, which depicted a flattened musk turtle. The turtle—an endangered species, long sacred to the

Cherokee—was the symbol for an activist organization he founded in 1996 called Wild Alabama. That outfit later expanded into an influential conservation group called Wild South, whose efforts currently cover eight southeastern states.

The karate gi was an item he had designed for himself many years ago. He'd since quit practicing karate, having finally decided that "if some three-hundred-fifty-pound guy was going to beat me to death, I'd rather just shoot him." In his former life as a firebrand environmentalist in Alabama, for self-protection he had taken to carrying two powerful handguns everywhere he went. On our hike, to cut down on weight, he only carried a pocket-sized .22 Magnum. "I feel kinda naked with just this," he said at one point, holding it in his palm.

In an orange waist-pack, Marshall carried a GPS device, a few maps, a black notebook, a pen, and firestarter for emergencies. As we walked, from time to time he pulled out the GPS, consulted his map, and took a few notes in his pocket notebook, which was full of hand-drawn maps. He still wrote in the cribbed, cryptic shorthand he'd learned while working as a plat technician for surveyor crews. On the first page, in a gesture reminiscent of the old explorer's journals, he had written his name, and beneath it, his Cherokee nickname, *Nvnohi Diwatisgi*, which means "the Road Finder." (The word for *path* and *road* is the same in Cherokee: *nvnohi*, "the rocky place," a place where the soil and vegetation have already been worn away.)

"Everything gets mapped, everything gets drawn, all the waypoints, contours," he explained. He flipped through the pages. "Every trip since I've been up here: Little Frog, Big Snowbird, Devil's Den Ridge . . ."

Marshall shuffled between copies of historical maps and hand-written historical accounts. On one large modern map, he showed me the trail we would be hiking that day. It ran beside Fires Creek and up over Carvers Gap, connecting the old Cherokee set-

tlements of Tusquittee Town and Tomathy Town. Our walk was only the iceberg's tip of the trail-finding process: the bulk of the work consisted of archival research. He regularly drove to libraries across the country, including the National Archives in Washington, DC, where he and an assistant would spend days paging through old records and snapping digital photographs by the thousands. Once he had confirmed the location of a trail in the historical record, he would use a digital mapping program to plot a tentative route. Then he would hike through the woods searching for it. If he found a trail on the ground that followed his hypothetical line, it was a good indication that it was the old Cherokee trail, but he would still have to perform a transect, walking in a straight line from ridge to ridge, to see if the area contained other potential candidates. "If there's ten trails in there, you say all right, which one was the real trail?" Marshall said. "But if there's one trail in there, then you're pretty sure that's it."

He also paid close attention to the surrounding area, to discern if it was an untouched Native American path, or whether it had been converted into a wagon road, a fire line, or a logging road. (You can identify wagon roads, for example, because they are wider and deeply rutted; you also tend to find piles of rock lying beside them, marking where the road builders tried to flatten the road surface.) Sometimes, he would find three iterations of a trail—the original trail, a wagon road, and then a modern road—laid out side-by-side, like afterimages.

Though his research was best known for helping reveal the startling degree to which our road network was inherited (or more accurately, purloined) from Native Americans, Marshall's top priority was to find those few remaining ancient Cherokee trails that had remained undisturbed. His motivations were (at least, in part) environmentalist: if he could locate a historical Cherokee footpath, federal legislation mandates that the Forest Service must protect a quarter of a mile of land on either side of the trail until it has undergone a proper archaeological survey (which, in certain cases, can take

decades). And if the site is ultimately found to be historically significant, then the state can take steps to ensure that the trail's historical context—which just so happens to be old-growth forest—remains intact. By locating and mapping old Cherokee trails, Marshall had so far been able to protect more than forty-nine thousand acres of public land from logging and mining operations.

Marshall's work shook up certain fundamental assumptions about the nature of conservation work. Conservationists generally fight to protect *blocks* of land, whereas Marshall fought to conserve geographic *lines*. Since Cherokee paths often followed game trails, they provide ideal corridors for wildlife to move between ecosystems. The paths also tend to travel along dividing ridgelines, which provide scenic overlooks for future visitors. Even more radically, by showing that human artifacts can serve as the linchpin of wilderness areas, Marshall was bridging an old divide between culture and environment. That dichotomy is familiar to Americans today, but it would have been wholly foreign to precolonial Native Americans. Mile by mile, Marshall was incorporating the human landscape back into the natural one.

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We walked down the dirt road, looking for openings in the trees. Soon we discovered a trail branching off to the right. It was lovely—open, airy, carpeted with the duff of the overhanging cherry trees, oaks, and pines—but to Marshall it felt not quite right. For one thing, it was too wide. The Cherokee trained themselves to walk heel-to-toe, like tightrope walkers. As one Cherokee man explained to me, "There's no need for a big wide road. All you're going to do is go there, and the things that are there"—plants, medicine, game animals—"won't be there if you make the road wide."

Marshall ventured a guess that this trail was once widened by loggers, and that it would narrow as we neared the top of the ridge.

Five minutes later, though, we ran across a blue plastic rectangle nailed to a tree—a blaze. Marshall’s confusion deepened; the trail wasn’t supposed to be designated as a hiking trail. And yet, when he consulted his map and the GPS, it appeared we were on course.

He finally concluded that the Forest Service must have appropriated the Cherokee trail. This was unusual. Native American trails normally don’t grow into hiking trails, because their objectives differ. Native trails reach their destinations as quickly as possible, sticking to ridgelines while avoiding peaks and gullies. In contrast, recreational trails, which are a relatively modern European invention, dawdle along, gravitating to sites of maximal scenic beauty—mountaintops, waterfalls, overlooks, and vast bodies of water. Modern hiking trails are also meticulously designed to resist the erosive power of hikers wearing rubber-soled boots; so, for example, on a steep hillside, they will cut long switchbacks to lessen the incline. Native trails almost never do this. They tend to charge up slopes in a straight line, following the “fall line”—the path water would take while flowing downhill.

Though Native trails prized speed over ease (and erosion resistance), they also often detoured from the most mechanistically efficient route, for reasons specific to each culture. Gerald Oetelaar, an archeologist who studied the Plains Indians of Canada, told me he became frustrated whenever colleagues relied on computer programs to map “least cost pathways” across ancient indigenous landscapes, because they were laboring under the false assumption that Native people traveled like the Mars Rover, rolling across an unpeopled and unstoried landscape. “I keep pointing out to them: All landscapes have histories!”

Among all living things on Earth, humans are, as far as we know, uniquely rich in what we call *culture*—art, stories, rites, religion, communal identities, moral wisdom—and our trails have grown to reflect this. “There are reasons why we don’t do things the ‘logical’ way,” observed James Snead, an archaeologist who studies “landscapes

of movement” in the American Southwest. Another way of framing this point would be to say the logic of human behavior is fantastically multiform, as are the trails it creates. A trail might go to great lengths to avoid enemy territory or detour to visit kinfolk; it might gravitate to sacred sites, or bend around haunted ones. Marshall had located a precolonial trail leading up to the crest of Clingmans Dome, where ceremonies were apparently held. If the Cherokee had been following the path of least resistance from one village to another, they would have avoided the mountaintop altogether. Elsewhere in North America, archaeologists have discovered that Native paths often veer to pass close by ritually significant sites, allowing walkers to stop and pray on their way to their destination.

Sometimes the trails themselves became cultural artifacts, much like pieces of art or religious relics. Out west, many tribes used tools to carve trails into the dry soil or stone, like giant petroglyphs. In Pajarito Mesa in New Mexico, Snead found trails running parallel to one another, redundantly, like the tines of a comb; he theorized that the construction of the trails, distinct from the walking of them, held some special significance. The Tewa people built paths, called “rain roads,” from mountaintop shrines down to their villages to direct the rain to their crops. The Numic and Yuman cultures constructed paths leading to certain mountaintops (sites of power, or *puha*), which they believed were traveled not only by the living, but also by the dead, dreaming people, animals, water babies, and the wind. These trails existed both in the physical world and in the world of spirits and stories—two different landscapes that, among many Native American cultures, are inseparably entwined.

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As the trail began to ascend the ridge, Marshall became more certain that it was an old Cherokee trail and not a modern addition. For one thing, it followed the ridgeline, which is a telltale feature of Cherokee

trails. He explained that once a walker was high atop a ridge, it was possible to walk for "miles and miles and miles" without encountering serious obstacles. In wintertime, the ridges saved a walker from having to cross through frigid waters, and in summer, they stayed high above the low-lying thickets of ivy, laurel, and rhododendron, which the locals call "laurel hells."

The trail tilted upward, slowing our progress. Marshall calculated that for every mile we hiked, we climbed a thousand feet. He said, between huffing breaths, that this was another good indication that the trail had been made by Cherokees and not Europeans. The English hated Cherokee trails, because they were too steep to follow on horseback.

Though we often speak of the "path of least resistance," a single landscape contains countless *paths* of least resistance, depending on the mode of transportation. The Plains Indians carted goods using a sled-like device called the dog travois, so their trails gravitated to areas of slick grass, like prairie wool, and avoided steep inclines, because the travois would lift the dog's hind legs off the ground. After Europeans introduced horses to the Americas, some tribes also began using a horse travois, which can climb steeper inclines than the dog travois. However, horses cannot climb as steeply as llamas, which meant that farther south in Peru, Spanish conquistadors could not follow many of the Inca trails.

The Cherokee traveled primarily on foot, wearing soft-soled moccasins that allowed their toes to grasp the ground. "The footwear was intimately connected with Indian trails," Marshall said. "It's an aspect that nobody thinks about." On his feet, he wore a battered pair of rubber-soled hiking shoes, halfway between a boot and a cross-trainer, with seams held together by yellow, foamy glue. He had tried wearing moccasins before, but he discovered that his feet weren't strong enough to grip the ground effectively.

The trail rose higher through the brightening air. Gray trees held

the husks of dead leaves, shakily. On the side of the trail lay the remains of a chestnut tree, hollowed out by fungus. Chestnut trees were once the most abundant in the region; each summer, they showered the Appalachians in flurries of pale blossoms, and they grew so large that when they toppled over, the sound was known as "clear day thunder." But around the turn of the twentieth century, they started becoming infected with an invasive blight and died off by the millions.

In this and a hundred other ways, the forest we were walking through would have been unrecognizable to the ancient Cherokee. Tyler Howe, a Cherokee historian, pressed this point home when I spoke with him. "The forests today are nothing compared to the forests then," he said. "The natural environment of the Cherokee world has been completely changed." For one thing, nearly all the land had been intensively logged, so the trees would have looked shockingly young to an ancient Cherokee. Moreover, the Cherokee regularly burned the woods, which would have cleared out many of the thickets of rhododendron and multiflora rose, so, to them, a modern forest would look sloppy, unkempt.

The first European visitors to North America were stunned by the forests they found—not just by the age and grandeur of the trees, but also by the lack of undergrowth. Early observers frequently noted that the forests of the Eastern seaboard resembled that of an English park. Some stated that a man could ride a horse (or according to one source, a four-horse chariot) at full gallop through the trees without a snag. A great many colonists ignorantly assumed that this was the natural, divinely ordained state of the forests. Indeed, it may well have appeared that way, because infectious diseases, imported by the earliest explorers, had already killed off as much as ninety percent of the indigenous population before settlers arrived en masse. Those second-wave pioneers had stepped into a vast garden, it seemed, with no gardener in sight.

Even early on, though, observant Europeans cottoned to the fact that the park-like appearance of the forests was the result of careful maintenance. William Wood, who published the first comprehensive natural history of New England in 1634, noted that "in those places where the Indians inhabit, there is scarce a bush or bramble, or any cumbersome underwood to be seen in the more champion ground."^{*} Meanwhile, he noted, in those places where Native communities had died off from plagues, or where rivers prevented wildfires from spreading, there was "much underwood," so much so that "it is called ragged plain because it tears and rents the cloths of them that pass."

In addition to easing foot travel, fire was used to clear farmland, to hunt, to encourage the growth of berry bushes and deer grass, to drive off mosquitoes, and to deplete the natural resources of neighboring tribes. When the British put an end to the practice of strategic burning, millions of acres of open oak savannas reverted to dense forests within two decades. It is now widely understood that, rather than existing in a blissfully "natural" state, the native inhabitants of North America thoroughly altered the landscape, patiently molding it, as a foot breaks in a new moccasin—and being molded by it, as a moccasin toughens a foot.

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We stopped for lunch at the top of the ridge, where the trail crossed a dirt road. Off in the distance the mountains were isoprene blue. White sun filtered down through high clouds, as sweet and clear as ice melt.

Marshall opened his backpack and pulled out five different plastic baggies. One had a baked potato in it, wrapped in aluminum foil, still warm. Another held an apple. Another, a peanut butter sandwich.

^{*}"Champion," also called "champaign," is an antiquated term for open, level country. It has the same root as "campus."

Another held pale cloves of raw garlic, which Marshall popped into his mouth and crunched without grimacing. Another held a slab of blackened bear meat. He had smoked it for two hours then broiled it in the oven to leach out the remaining fat. He cut me off a piece. It was delicious, reminiscent of Texas smoked brisket. For himself, Marshall saved a huge bear rib, which he gnawed at like a wild, white-muzzled dog.

He lay on his side, propped on an elbow, telling stories from his youth. When he was in fifth grade, he said, he became obsessed with stories about American Indians; he would hide recollections of frontier life inside his textbooks so he could read them while pretending to study. Naturally, he gravitated to the Boy Scouts, where he learned to hike, canoe, and camp out. When he was eighteen, he built a raft out of fifty-five-gallon drums (complete with a sail, a detachable canoe, and a ten-foot Confederate flag), which he and two friends floated down the Alabama River from Selma to the Gulf of Mexico.

Soon after, he befriended an "old mountain man" named John Garvin Sanford. As the two went "prowlin'" through the woods in search of ginseng and goldenseal, Sanford would sometimes lead Marshall to the site of old Cherokee villages. On one occasion, Sanford dug down into a fire pit in an abandoned village and recovered a pile of tiny, charred corncobs. (Ears of corn, he explained, were much smaller before Europeans began cultivating them.) Marshall canoed to various former townsites to see if he could find shards of pottery or remnants of tomahawks. Sometimes, standing in a plowed field, he could see the dark circles and squares where Cherokee houses had once stood; even after being tilled countless times, the ground was still blackened from centuries of cooking fires. He puzzled over the old Cherokee trails, where they went, and why.

In the following years, he drove across the country, hiking and canoeing the wildest places he could find. When his friends went off to Woodstock, he went to Canada to paddle the lakes of the Quetico.

He took up studying survival skills and opened a survival school called the Southeastern School of Outdoor Skills. For two years he made a living trapping mink, muskrat, raccoon, and fox. "Everything the Native Americans did, I wanted to emulate," he explained. "I saw the whole world through them."

For a long time, he had believed he was one-sixteenth Cherokee, but in 2015 he took a DNA test that suggested otherwise. "Family traditions sometimes are found to be family fantasies, I guess," he later wrote to me in an email. More disappointing still, he had discovered that one of his ancestors, while fighting in the Revolutionary War, had helped burn the towns of the Lower Cherokee, who were then allies of the British. "I guess that my mission in life," he concluded, "is to make retribution for the sins of my ancestors."

In 1991 Marshall's passion for wild lands began to take on an activist edge. That year, after many years of working as an engineer for corporations that built paper mills and nuclear power plants—work he despised—he purchased a 140-year-old cabin on an inholding in the Bankhead National Forest. He moved there in the hopes of getting back in touch with the wilderness, but on his regular hikes, he was horrified to find that huge patches of the forest, including stands of old-growth trees, had been razed.

One day, he ran across an article in the local newspaper by none other than Rickey Butch Walker denouncing the clearcuts in Indian Tomb Hollow, a site containing ancient Cherokee steatite pottery. Marshall befriended Walker, who showed him the desecrated site. At first Marshall was enraged by the damage he saw, but then he had an inspiration: He decided to cobble together a newsletter called the *Bankhead Monitor*, which would chronicle the ongoing destruction of the forest. The front-page headline of the first issue read, "Alabama Chainsaw Massacre: Clearcutting a Historic Site." (He surreptitiously printed the first copies of it at work, in the office of Amoco Chemicals.) Marshall began by handing the newsletters out for free

in parking lots, then he sold them for a dollar in local stores. They gradually caught on. Over the course of fifteen years, the four-page newsletter grew to a full color, one-hundred-page magazine with a circulation of five thousand.

In 1994 an anonymous donor offered to pay Marshall a yearly salary to ensure that he could quit his job and fight the Forest Service full-time. Marshall accepted the offer, redoubling his efforts. However, selling environmental protection to rural Alabamians proved a tricky task. At one community meeting, in a remote country church, Marshall narrowly avoided a mob beating, thanks only to the intervention of a local preacher. On another occasion, Marshall and two friends were held at gunpoint by an inebriated hunter, who ranted about how environmentalists wanted to "lock up the forest." (They managed to escape only when the hunter bent down to draw a map in the dirt to show the location of a nearby well—where he intended to dump their bodies, Marshall presumed—and toppled over backward.)

As the fight intensified, Marshall began receiving death threats. He took to wearing two guns whenever he was in public, a 9mm Glock and a Smith & Wesson .357 Magnum. His then-wife bought a gun as well. For a time, he hired off-duty police officers to guard his property. Local residents boycotted his business—a small country store called the Warrior Mountains Trading Company—which he was eventually forced to sell. All told, he lost \$400,000 over the course of those years, the bulk of his life savings.

Marshall had started out life "as rightwing as they come," he says: In his twenties, he was a member of the John Birch Society and a campaign volunteer for Ronald Reagan. In the years since, his beliefs had occasionally drifted leftward, but not by much. "Conservation," he liked to say, "is conservative." It came as a shock, then, when his opponents in the fight over Bankhead National Forest tried to paint him as a leftist radical. "It was like I was the most

evil, liberal, godless person ever to exist," he recalled. "They called me a communist!"

Marshall eventually came to describe himself as a "conservationist" rather than an "environmentalist." Within the larger environmentalist community, he was something of an enigma, he said. As a Christian and a sportsman, the biocentric approach of Deep Ecology, then in ascendance, held no interest for him. He loved the woods because it was a place for humans to roam free, to hunt, and to fish. Environmental activists from the North seemed to come from a different planet. At one Greenpeace training camp he attended in Oregon, he was surprised to realize that he was virtually the only person in attendance who ate meat. While there, he took a workshop on how to climb trees and hang protest banners. A public radio reporter asked him if he was going to use those skills when he returned home to Alabama. "Oh hell no," he replied. "If you climbed a tree in Alabama, they'd cut the tree down. If you chain yourself across a road they'll run over you. You can't do that kind of stuff in Alabama."

In the end, it was Rickey Butch Walker who cracked the code of how to convince Alabamians to fight for their wild places. Having grown up in those woods, Walker knew that for many people, the wilderness did not represent an otherworldly sanctum of 'biodiversity,' as it did for many urban environmentalists. Rather, it served as the birthplace, staging ground, and repository for the area's deepest traditions. Walker urged Marshall to shift his focus from protecting endangered species to protecting local traditions. Hunting and fishing were considered sacrosanct, and, in an area where roughly a quarter of the residents claimed some form of Cherokee ancestry, historic tribal sites were fiercely guarded. Marshall quickly saw the merits of Walker's approach. "You go on down to Alabama, and people don't give a damn about endangered squirrels or whatever," he told me. "But if you go up there and want to mess with that hill where they killed their first deer, boy, they'll *kill* you. Everything has to be

framed in personal language. The more educated people are about their roots, the more connected they're going to feel to their land. And then they're going to stand up and *fight* for their land."

That fight ultimately proved successful: a moratorium was placed on the cutting of eighteen thousand acres of public land, the conversion of Bankhead Forest into commercial pine plantations was halted, and a number of sacred sites have remained untouched ever since.

Looking back, Marshall said, his entire life could be seen as a preparation for the wildly multidisciplinary work of mapping ancient trails. The years of hiking taught him to navigate cross-country, the career in trapping taught him about lines of habitual movement, and his lifelong study of American Indian cultures taught him why a Native trail might go somewhere a European trail would not. Working on surveying crews taught him how to read geographic surveys and draw maps. And years spent hunting, fishing, attending Baptist church services, and cussing liberal bureaucrats—in short, living the life of a red-blooded son of the Southland—allowed him to talk with hillbillies and Cherokee elders alike, gathering information a desk-bound academic might otherwise miss.

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In the end, Marshall concluded that the trail we'd walked that November morning was among the best preserved Cherokee trails in western North Carolina. He later found mention of it in an account written by an army captain named W. G. Williams, who led a secret reconnaissance mission into Cherokee country in 1837 in preparation for the infamous Cherokee Removal. (Williams described it, tersely, as a "very rugged trail.")

Initially, Marshall had dubbed it the "Big Stamp Trail," because it eventually climbed its way to a high grassy summit called Big Stamp. A "stamp," in local vernacular, is a place where large numbers of deer

(or formerly, buffalo) gather to graze or access salt licks, stomping down vegetation in the process.

There was some disagreement, however, over the name. On the morning of our hike Marshall had met a bear hunter named Jimmy Russell, who corrected him when Marshall said he was hiking up toward Big Stamp. "We call it Big Stomp," Russell said. Marshall scribbled this down in his notebook.

A few hours later, Marshall received a call on his cell phone from his neighbor, Randy, who happened to be another bear hunter. (Bear hunters, Marshall explained, were an excellent and underutilized intellectual resource—because they had to scramble cross-country in pursuit of their quarry, they knew every trail in the mountains, even the abandoned ones.) Marshall told Randy we were surveying the trail up to "Big Stomp."

Randy interrupted him. "We call it Big Stamp," he said.

"Well, the map calls it Big Stamp, but we were corrected," said Marshall. "That mountain guy told us they call it Big Stomp."

"Aww, well we always call it Big Stamp. That's what we call it," Randy said.

Marshall made a note of this, too. (He ultimately stuck with "Stamp.")

In this line of work, names matter. In the absence of reliable maps, Marshall was often forced to stitch together prospective paths from the town names he found in written records. This task was made exponentially more difficult by the fact that explorers and surveyors tended to err badly (and often, bizarrely) when transliterating Cherokee place names. For example, the Cherokee village of Ayoree Town was inaccurately renamed Ioree, which then became the Iotla Valley. George R. Stewart pointed out in his masterful *Names on the Land* that Europeans, accustomed "to names like Cadiz and Bristol which had long since lost literal meaning," were often content to mangle Native Americans' highly descriptive, intricately wrought place names,

using them as mere tags, much like how an archaeologist might use a Stone-Age knife as a paperweight.

Sometimes when Marshall was stuck on a curious place name, he would take it to a Cherokee linguist named Tom Belt, who could decode it. Not long ago, for example, Belt informed him that Guinekelokee (what is now the West Fork of the Chatoga River) meant, "where the trees hang over the sides."

I visited Belt one afternoon at his office at Western Carolina University. He wore cowboy boots, blue jeans, and a silver belt buckle. Around his neck, over a purple dress shirt, hung an abalone pendant engraved with woodpecker heads. A mop of gray-streaked hair was cut just above his boyish eyes. His voice had a warm, dark, smoke-rasped, far-off quality.

Belt was born and raised in Tahlequah, Oklahoma. His ancestors were brought there in the decade following the signing of the widely reviled Indian Removal Act of 1830 by President Andrew Jackson. (Belt's feelings about Jackson were plain: on the wall of his office hung a photo of Jackson that had been fashioned into a WANTED poster.) Some of the Cherokee had gone west peacefully, but many were moved by force, shuttled under armed guard along what they called *Nvnohi Dunatlohilvhi*, "The Trail Where They Cried," or as it is more commonly known, the Trail of Tears. Sixteen thousand Cherokees were driven from their homes; while some were carried on riverboats, others were forced to walk almost a thousand miles across inhospitable country. Perhaps as many as four thousand men, women, and children died, mostly of disease.

The full ramifications of the Removal, and the pain it inflicted, are difficult for non-Native Americans to grasp. As Belt made clear to me, our two cultures have a drastically different "sense of place." To Euro-Americans, places are most often regarded as sites of residence or economic activity—essentially blank backdrops for human enterprise. As such, Euro-American places are largely ahistorical,

replaceable; they change hands, and their names can change too. By comparison, the Cherokee conception of place is more fixed, specified, eternal. "In the native world, places don't change identity," Belt said. "We are more in touch with place as where things *have happened*, and where things *are*, as opposed to where *we are*."

The Cherokee derived their tribal identity from an ancient town-site twenty-five miles west of where we were sitting, called Kituwah, "the soil that belongs to the creator." Cherokee villages once ranged across the Southeast, from Kentucky to Georgia, but, according to Belt, if you had asked any of those villagers where they were from, they would have told you they were *Otsigiduwagi*, the people of Kituwah. On a ceremonial mound in the mother town burned an eternal flame. Once a year, coals from that flame were carried to the various towns. Thus was the vast Cherokee nation strung together: by language, by narrative, by ancestry, by tradition, by glowing embers carried along a network of trails.*

There are myriad reasons—historical, cultural, and economic—why the Anglo-American sense of place diverged so radically from that of the Cherokee. However, Belt believed that a crucial, often overlooked difference lay in the very structure of the respective languages. The Cherokee language differs from English in key ways. Cherokee has seven cardinal directions that continually situate speakers in space: *north, south, east, west, up, down*, and (hardest of all for us outsiders to grasp) *here*. The structure of Cherokee grammar—in which the subject of a sentence comes after the direct object—also serves to subtly decenter the speaker. "In the English language it's *I think this, I think that; I want this, I want that*. It's as if we're in the

*When the Cherokees were forced to move to Oklahoma beginning in 1830, embers from that eternal flame were carried west, and the fire was rekindled there. Then, in 1951, the flame was brought back to North Carolina, where it now burns in front of the Museum of the Cherokee Indian in the town of Cherokee.

center of the world and the world is around us," Belt said. "In our language, everything is *here* and we're some place around it. Which means that we're just a part of it, as opposed to being in the center of it." Moreover, Belt noticed, the Cherokee word order was better suited to a wild environment. As he pointed out, when a bear is sneaking up on your friend, it helps for the sequence of words coming out of your mouth to be "bear . . . I . . . see" rather than "I . . . see . . . a . . . bear."

Belt's upbringing made him acutely aware of the ties between geography and language. As a boy, he spoke only Cherokee; he didn't learn English until he was seven years old. Back then he spent his afternoons playing war games with his friends in the prairies of Oklahoma. In his mind, however, he always fantasized that he was in a land of mountain slopes, soaring trees, and murmuring brooks. When he moved to North Carolina, at the age of forty, he was shocked to realize that this was the landscape he had always been imagining. A friend of his, who grew up not far from where he did, recounted a similar experience. She showed him a picture she'd drawn when she was five or six. The terrain of the background was verdurous, mountainous, utterly unlike anything she'd ever seen in Oklahoma. The same landscape appeared in the background of all her drawings, she said.

"It wasn't until she came here that she realized what she was drawing," Belt said. "She was drawing these mountains."

This sense of deep geographic memory may seem mystical, he said, but it isn't—or at least, isn't entirely—because the landscape is "encoded" directly into the language. Cherokee diction and syntax are mountainous. The language has several fine-grained descriptors for different types of hills. Suffixes can be appended to nouns to indicate whether an object is uphill or downhill from the speaker. (If there is a river nearby, objects can also be described as upstream or downstream.) In the flatlands of Oklahoma, this mode of description seemed odd to Belt, until he came to the mountains of North Carolina, and then it made perfect sense.

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Barbara Duncan, a folklorist who has spent decades recording Cherokee myths and legends, told me that she had noticed a curious difference between the eastern and western halves of the Cherokee nation. The stories of the eastern Cherokee, those who avoided the Removal, are often more geographically rooted than those of the western Cherokee, she said. She cited an ancient folktale about a race between a turtle and a rabbit, in which the clever turtle fools the cocky rabbit by positioning his brethren on top of a series of peaks, so that every time the rabbit crested one mountain, he was shocked to find the turtle ahead on the next. The recollections of eastern Cherokees mentioned that the story occurred on what is today called Mount Mitchell, whereas those of western Cherokees typically do not specify a location. "And if you go to Mount Mitchell, you can see the land formation that is described in the story," Duncan said. "You can tell the story without ever going to Mount Mitchell, it's still an entertaining story. But when you go up on top of that mountain and you see that landform, you're like 'Oh, *this* is what they're describing.' It's amazing."

"Almost every prominent rock and mountain, every deep bend in the river, in the old Cherokee country has its accompanying legend," noted the ethnographer James Mooney. "It may be a little story that can be told in a paragraph, to account for some natural feature, or it may be one chapter of a myth that has its sequel in a mountain a hundred miles away." This phenomenon, Mooney wrote, extended well beyond the Cherokee. In the storytelling traditions of virtually every indigenous culture, stories don't unfold abstractly, like Little Red Riding Hood skipping through unnamed woods; they *take place*. The stories of the Inuit, for example, always specify a real setting where the story (often, a depiction of a journey) unfolds; many stories even include details about the direction of the prevailing wind.

In his landmark study of the Western Apache, *Wisdom Sits in Places*, the linguistic anthropologist Keith Basso limned the many ways that land and language help construct indigenous cultures. First, places were named, often in intricate visual detail ("Water Flows Inward Under a Cottonwood Tree," "White Rocks Lie Above in a Compact Cluster"). Once named, those places became what Basso called "mnemonic pegs" to which stories—creation myths, morality tales, ancestral history—were attached and group identities were formed.

Apaches view the past as a well-worn trail (*'intin'*), once traveled by their ancestors, and still being traveled today. "Beyond the memories of living persons, this path is no longer visible," wrote Basso. "For this reason, the past must be constructed—which is to say, imagined—with the aid of historical materials." Apaches relate this process of re-creation to how one can reconstruct a person's movements from scattered footprints. Time frames grow vague, and characters are often reduced to archetypes, but the essential elements—the settings, the lessons, the flora and fauna—remain highly specific. ("Long ago, right there at that place, there were two beautiful girls . . ." begins a typical story.) Basso notes: "What matters most to Apaches is *where* events occurred, not when, and what they serve to reveal about the development and character of Apache social life."

In a delightful twist, Basso's work also provided a mirror view of just how strange the prevalent mode of Euro-American storytelling is. Upon hearing European stories read aloud to them, many Apaches told Basso they found them as inert as the paper on which they were written. By comparison, Apache oral narratives were vivid, fluid; they shifted subtly with each telling, in accordance with the whims of the speaker and the disposition of the listener. Apache stories may not have been strictly accurate by academic standards, but they were wise, witty, and most important, they *worked*. To teach someone a lesson, Apache elders would often tell that person a story about a specific place. For example, a careless boy might be told the story of the canyon where

a girl took a shortcut against her mother's instructions and ended up getting bitten by a snake. That way, every time the careless boy passed by or even heard mention of that canyon, he would be reminded of the lesson. It was, therefore, no exaggeration when Apaches said that a place "stalks" them, or that the land "makes the people live right."

In Apache culture, places do not exist in isolation. Rather, as in nearly all indigenous cultures, places are linked together in a spatial and conceptual matrix, flowing one to the next. On one occasion, Basso noticed an old Apache cowboy talking quietly to himself. When Basso listened carefully, he learned that the old man was reciting the names of places, one after another—"a long list, punctuated only by spurts of tobacco juice, that went on for nearly ten minutes."

Basso asked him what he was doing, and the old cowboy replied that he "talked names" all the time.

"Why?" Basso asked.

"I like to," the old cowboy replied. "I ride that way in my mind."

Anthropologists have a term for this practice of place-listing: topogeny. It is storytelling at its most spare, rendering a narrative down to a string of dense linguistic packets, like seeds, which flower in the mind. It has been observed in locations as far-flung as Alaska, Papua New Guinea, Vancouver Island, Indonesia, and the Philippines. The list of names serves to pull the mind across the landscape—from mnemonic peg to mnemonic peg, from story to story—following a geographic line. According to the anthropologist Thomas Maschio, the Rauto tribe of Papua New Guinea could recite hundreds of place names in a row. "To remember the names of these sites, elders said that they 'had to walk' along the various paths," Maschio wrote. "As I sat with the elders in the men's ceremonial house, the sequence of place names was recited to me as if the elders were taking part in a journey or imaginary walk through the many paths of the land. Elders would name a place, tell me its history, and then say that they would now 'walk on to the next place.'"

Topogeny is not simply the listing of names; it is the summoning, in the mind's eye, of a mental landscape constructed of lines. This notion struck me one day the following summer, when I went on a hike with Lamar Marshall alongside Brush Creek, near the old Cherokee town of Alijoy, an hour's drive from Asheville. From time to time along our walk, he paused to gather plants the Cherokees living there would have found useful: a fragrant pinch of spicebush, a handful of fibrous bear grass, a bright yellow knot of medicinal goldenseal root. On the banks of the creek, he spotted a beaver slide, and showed me how he would have once set a trap there.

Though he moved fluidly through the thick switch cane, Marshall was having trouble catching his breath. He told me he spent too much time inside, staring at old maps and documents. His passion for research was beginning to border on obsession.

"My wife is on me about it right now," he said. "We're in the middle of one of the greatest places in America: an inordinate amount of trails, scenic beauty, rivers. And how many times have I fished this year? Only once. I've only been in my canoe for four hours. Every year I say, 'This year is going to be different. I'm gonna fish, I'm gonna hike, I'm gonna backpack, I'm gonna camp.' And then the year gets gone, and it's like, 'I just turned sixty-six!'"

But all that time spent inside studying old maps and stories seems to have only strengthened his connection to the land, oddly enough. In the six short years since he moved to North Carolina, his knowledge of the history and geography of the region had grown truly encyclopedic. The most striking thing, I noticed, was *how* he spoke about history: his recollections were almost always structured spatially, rather than chronologically. For him, as for that Apache cowboy and those Rauto elders, the land was furnished with hundreds of mnemonic pegs.

"People are amazed because I can draw a map of all of western North Carolina," he said. "I can draw all the watersheds. I can put in probably close to sixty Cherokee towns. And it's not like I've got a

list in my mind, I've memorized A, B, C, D. No, I'm *visualizing* the trail going up over Rabun Gap, down into the upper branches of the Tennessee River . . . My mind just flows over the mountains, down the valleys, along the trails, through the thickets . . .

He closed his eyes and tilted his head back, seeing something I could not.

"There's: Estatee Old Town,
Kewoche Town,
Tessentee Town . . .
Skeena Town,
Echoy Town,
Tassee Town . . .
Nikwasi.
Cartoogechaye.
Nowee.
Watauga.
Ayoree.
Cowee.
Usarla.
Cowitchee.
Alijoy.
Alarka . . ."

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Marshall had brought me out to Brush Creek that morning so we could look at a stretch of previously undiscovered wagon road that was part of the Trail of Tears. He was fighting to gain federal protection for it as a historic place—it was a dark history, but an instructive one nonetheless. It was rare to find an undeveloped stretch of the Trail of Tears. Much of the rest had already been assimilated into the modern road network.

The Trail of Tears was far from a unitary trail. What we call the "trail" was in fact a spider-veined array of paths along which tribes were transported, including a number of river routes. In 1987, President Reagan designated certain stretches of that network a National Historic Trail, to memorialize the one hundred fiftieth anniversary of the Removal. Every year, some one hundred thousand motorcyclists ride one of its legs—now a series of highways—west from Chattanooga, Tennessee to Waterloo, Alabama, in solidarity with the removed tribes.

We got out of the car and crossed a swinging bridge across Brush Creek, then we walked down a gravel road until we reached a tributary, where we tiptoed over a log with wooden footholds nailed to it. ("Redneck Bridge," Marshall chuckled.) On the other side of the creek ran the forgotten stretch of the Trail of Tears. It was flooded with dark water. Otherwise, it was remarkably well preserved. The passage of countless wagons had cut a wide, muddy runway. Before it had been a wagon road, it too would have been a Cherokee footpath.

"You can follow this for miles," Marshall said, looking off at where it disappeared into the trees.

Standing there, the cruel irony of not just the Trail of Tears, but all Native trails, hit home. Over the course of thousands of years, Native Americans devised a beautifully functional network of paths, not knowing that those same trails would later be used by a foreign empire in its slow invasion. Along their trails flowed surveyors, missionaries, farmers, and soldiers, as well as diseases, technology, and ideology. Then, when a critical mass of foreigners had moved into tribal lands, it was along those trails that Native families were hauled from their home. We tend to think of colonialism as an unstoppable wave, or a platoon of tanks moving smoothly across the plains, when in fact it is more like the trickle of an ever-multiplying virus through an arterial network.

From the very beginning, Europeans exploited Native wisdom,

Native kindness, and Native infrastructure. Across the continent, many of the easiest mountain passes were discovered only when Native American guides led white men there. Henry Schoolcraft located the source of the Mississippi due only to the guidance of an Ojibwa chief. Following his Native guides across Baja California, an explorer named James Ohio Pattie slept on the edge of their blankets at night so they could not sneak off without waking him. (If they had escaped, he wrote, "we should all undoubtedly have perished.")

One of history's most striking examples of how Europeans relied on local wisdom was provided by a rather mysterious figure named John Lederer. Almost nothing is known about Lederer prior to his arrival in Jamestown in the 1660s, save the fact that he was a doctor from Hamburg. Though he spoke little English, he did speak fluent German, French, Italian, and Latin (the language in which he later recorded his travels). Obstinate and ambitious, he was prone to amassing huge debts and bitter enemies. It is unclear how such a figure convinced the governor of Virginia, William Berkeley, to appoint him to search for a passage through the Appalachian Mountains to the West. But by March 1669, perhaps less than a year or two after arriving in the New World, he had already embarked on his first expedition. He hired three Native American guides to lead him. The trip was arduous—along the way, he was almost swallowed by quicksand and feared his horses would be devoured by wolves—but five days later, his party reached the foothills of the "Apalataean mountains." When Lederer first glimpsed the famous range, he could not decide whether they were mountains or clouds, until his guides fell to their knees in prostration and howled out a phrase meaning "God is nigh." (Or so he claimed.) Reaching the range, he attempted to ride up to the top of the mountains on his horse, but the horse balked. Lederer's guides were clearly also unfamiliar with the region, because they next attempted to scale the mountain on foot, without

the aid of a trail, and soon became entangled in brush and brambles. The route was so steep in places that, when Lederer looked down, his head swam. Though they had set out at first light, it was nightfall again before Lederer and his companions finally summited. They camped amid the dark boulders. He awoke high on the mountain the following dawn and looked west, expecting to find the sparkling waters of the Indian Ocean. Instead, there was only a wall of yet taller mountains. Hoping to find some passage through the range, he wandered among those snowy peaks for six days, drinking from springs where the water tasted faintly of aluminum, his hands and feet growing numb in the thick, chill air, before he gave up and returned home.

On a second expedition in May 1670, Lederer planned a more ambitious assault, leaving with five Native American guides and twenty Englishmen under the command of one Major William Harris. Lederer had wised up during his previous expedition. The most important lesson he had learned was that one could not navigate the mountains without the help of local tribes, who knew the easiest routes through the mountains. He took care to bring along a store of trade goods to win their confidence: sturdy cloth, sharp-edged tools, dazzling trinkets, and strong liquor. He had also learned how to travel in comfort over the strange continent. At night, instead of sleeping on a bedroll, he slept in a hammock, which was "more cool and pleasant than any bed whatsoever." He fed himself by hunting for deer, turkeys, pigeons, partridges, and pheasants; when he was nearing mountains where game would be scarce, he prepared a pile of smoked meat in advance. Instead of biscuits, he brought along dried corn meal ("i.e. Indian wheat"), which he seasoned with a pinch of salt. The Englishmen laughed at his odd food, until their biscuits turned moldy in the humid air. Then they tried to beg Lederer's corn meal from him, but—"being determined to go upon further discoveries"—he refused to share.

Two days after setting out, the party reached a village marked by a pyramid of stones. They asked the villagers for directions to the mountains. An old man obliged to describe the route for them, drawing a map in the dirt with his staff. He depicted two paths that meandered through the mountains, one north and the other south. However, Lederer's companions, slighting the old man's advice, decided to strike their own course, following their compasses due west. Reluctantly, Lederer tagged along. For the next nine days, the party exhausted their horses by riding over rough terrain and scaling craggy cliffs. Lederer compared their progress to that of a land crab, which, crawling up and over every plant in its path rather than circumventing them, covers less than two feet of ground after a day's hard labor. The expedition finally reached a river flowing north, which Major Harris (perhaps willfully) mistook to be an arm of the fabled "lake of Canada." Having found this important landmark, Harris decided the party should return to Jamestown. Lederer disagreed, and an argument ensued. Harris's men, starved and exhausted, threatened Lederer with violence, but he staved them off with a letter from the governor granting him permission to push forward. Harris and his men turned back, leaving Lederer with a gun and a single guide, a Susquehannock named Jackzetavon. Harris returned to the colony and, according to Lederer, began to "report strange things in his own praise and my disparagement, presuming I would never appear to disprove him."

Lederer and Jackzetavon pushed on, traveling from village to village, stopping frequently to ask the local chieftains for directions. The information Lederer gathered, much of it refracted through an unknown number of translations, often shimmers with the exotic air of a colonial fantasy, replete with human sacrifices and temples full of pearls. Some of the tribes he encountered were tall, warlike, and rich; others were lazy or effeminate. Some were governed by democracies, others by ruthless monarchies, while others still held everything in

common ownership ("except their wives," Lederer primly added). In one village, Lederer watched a man step barefoot onto a bed of burning coals and stand, writhing, foam collecting on his lips, for a full hour, before leaping out, apparently uninjured. At times, Lederer was impressed by the Native peoples' resourcefulness—as when he witnessed the delicate process by which acorns were roasted and pressed to yield an amber-colored oil, which, sopped up with corn bread, provided "an extraordinary dainty." Yet he was also horrified by what he perceived as the tribes' gleeful love of violence, as when a group of young warriors returned from a raid to proudly present their chief with "skins torn off the heads and faces of three young girls."

Despite the Swiftian tone of his writing, in contrast to the other explorers of his age, Lederer comes across as relatively peaceable, respectful, and punctilious. His second expedition lasted for some thirty days, and he made it home safely. Shortly afterward, he set out on a third, failed expedition in which, after only six days, he was bitten on the shoulder by a deadly spider and only managed to survive thanks to a Native American man who sucked out the poison.

Back home in Maryland, Lederer compiled his notes into a narrative and drew a map showing the route of his journeys. For a time, his writings were dismissed as too fantastic to be believed, but scholars have since judged them to be surprisingly accurate, given the obvious technical limitations of the time. (One must keep in mind just how little white people then knew about the extent of the American continent. Many then believed the Indian Ocean lay only one or two hundred miles west of the eastern seashore, a theory Lederer roundly debunked.) Lederer's account included a wealth of information, including the location of two easily navigable passes over the mountains, both of which were confirmed by explorers in the following years. One of those passes was described for him by an unnamed group of Native Americans, the other he had seen while following Jackzetavon. It is possible they were the same two

paths the old man had drawn in the dirt, which Major Harris, in his arrogance, ignored.

The example set by Lederer and Harris was repeated almost everywhere that the colonists spread: those who ignored the advice of Native people and spurned their trails ended up tangled in brambles and mired in swamps, whereas those who co-opted Native wisdom moved smoothly. A century after Lederer, by following several well-known Native trails, the famed mountaineer Daniel Boone and a team of thirty-five loggers would cut a horse trail up and over the Appalachians through the Cumberland Gap, opening up the continent to westward colonial expansion.

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Native guides were sometimes called “pathfinders,” a title that has a double meaning: in wild and remote areas, their job was indeed to locate obscure trails, but in more densely populated areas—which were at times so thickly webbed with trails that explorers described them as a “maze”—the pathfinder’s job was to chart a course through that network. A scholar in North Carolina told me that he had recently read a history of Hillsborough that began with the vague, romantic-sounding claim that when Hillsborough was founded, the county was a “trackless wilderness.” “That’s such bullshit!” he exclaimed. “The problem wasn’t that it was trackless; it had *too many tracks*. That’s why you needed a Native American guide—to tell you which one of these roads to use.”

In the absence of a trusty guide, the best alternative for navigating a path network is to use a system of signs. Long before the painted blazes that demarcate modern hiking paths, people were slashing blazes into tree trunks to mark their trails. Across the continent, tree trunks were also marked with bright paint, elaborate carvings, or sketches drawn using a mixture of bear fat and charcoal. Along snowshoe paths in northeastern Ontario, evergreen boughs were

inserted into the snow at regular intervals to serve as signposts. In many places—from Montana to Bolivia—stones were piled up into cairns, which served both a functional and a spiritual purpose. When I was herding sheep in the Navajo country, I often ran across large stone cairns, which I was told were used in prayers, but which also helped us herders find our way home.

Perhaps more common, but certainly more difficult to document, were the subtler trail signs indigenous people left in passing. For instance, the practice of using bent or broken twigs to mark trails and transmit messages is widespread. In his supremely ill-titled account of transcontinental exploration, *First Man West*, Alexander Mackenzie wrote that his Native guides marked the trail “by breaking the branches of trees as they passed.” Elephant hunters in Africa noted that it was customary to mark one’s trail by blocking tributary trails with a stick laid across the offshoot, as if closing a gate. The Rauto tribe of Papua New Guinea have a word, *nakalang*, for the stick that bars an errant trail. In their language, the word is also used, poignantly, to signify death, which separates the divergent paths of the deceased from those of the living.

A few years ago, I went for a walk through the Bornean jungle with Henneson Bujang, a Penan tribesman, and his two sons. As we walked down faint footpaths, they showed me how to bend or break a twig to send a message to someone down the trail. Bujang estimated that he knew dozens of signals involving broken twigs for sending messages, which could be as specific as “Avoid this trail—there’s a hornet’s nest here,” or “You’re taking too long, I’m hiking up ahead.” The author Thom Henley recorded a number of stick signs from the groups he visited: A four-pronged stick planted in the ground indicated a burial, whereas three sticks arranged upright, like a fan, marked a territorial claim. One particularly elaborate stick sign he found in the Melinau River drainage showed the richness of information that could be encoded in these signs:

A large leaf at the top showed that the stick had been left by the headman. Three small uprooted seedlings indicated that the site had once been occupied by three families. A folded leaf told that the group was hungry, in search of game. Knotted rattan gave the number of days anticipated in the journey and two small sticks equal in length and placed transversely on the sign stick suggested that there was something for all Penan to share. Sticks and shavings at the base identified the group and revealed the direction of the journey.

Life is a continual struggle to make sense of the world's complexity. Knowledge is hard won, and so both spoken language and writing are ways of fixing and transmitting it. Though we tend to imagine that there is a sharp dichotomy between oral cultures and those that have developed written language, as trail signs reveal, there is a vast array of media—twigs, cairns, drawings, maps—that blur the line between the two. But perhaps the simplest and yet most dissolvent of all sign systems, the ur-inscription that predated writing and even the spoken word, is the trail itself.

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Henneson Bujang and Lamar Marshall had something in common. While Marshall was fighting clearcutting in Bankhead Forest in Alabama, Bujang and a handful of other Penan tribesmen began sabotaging logging companies' attempts to cut down the old-growth rainforest where they live. Against steep odds and immense pressure, both ultimately succeeded.

Though some truly nomadic, hunting-and-gathering members of the Penan still lived in the hinterlands of Borneo, the Bujangs had since settled into the comforts of Christianity, zinc roofs, and shotgun ownership. But they continued to doggedly oppose logging efforts (and refused considerable bribes) for reasons that were as much

coldly practical as they were culturally inherited: almost all their food still came from the jungle. Over the two days I spent with them, we ate wild bearded pig, mouse-deer, fish, small birds, ferns, local rice, green chilies, and cucumbers—all of it collected from within three miles of where we sat. The birds were hunted using a blowpipe, which Bujang wielded with a sniper's accuracy, hitting hornbills in treetops up to two hundred feet away. He also knew how to carve a bowl out of ironwood, weave a rattan basket, and build a bamboo shelter that would keep him both dry and elevated off the jungle floor. On our walks, he and his sons showed me which insects were edible, which leaves were antiseptic, which plants would cure a headache, and which giant ferns could be woven together to form an impromptu umbrella. "The earthworm can go hungry and the mouse-deer become lost in the forest, but never we Penan," the Penan like to say.

From the time they have grown waist-high, Penan children are traditionally taken on long journeys through the jungle to learn the land. Even just one generation ago, Penan parents would pull their children out of school for weeks or even months at a time to teach them the old stories and skills. But in recent years, Penan children have become too busy with schoolwork to memorize, preserve, and pass down this ancestral knowledge. Talking with Bujang, I came to realize that the most pernicious threat to their culture might not be the logging companies themselves (which can be fought by blocking roads and "spiking" trees); it's the slow but unceasing creep of the loggers' worldview.

Bujang worried over this cultural erosion one afternoon, as we sat around his dinner table, eating stubby blackened bananas. His sons were sprawled on the floor, playing with a skittery baby macaque and a lazy, bug-eyed pangolin they had taken as pets. Bujang said that while his sons were decent hunters, they lacked the instinctive directional sense that allowed him to walk for miles through dense, pathless brush without getting lost—a skill that only comes from a lifetime spent in the jungle. He worried that his grandsons and

great-grandsons would surely only be weaker, less knowledgeable, and more dependent on the state for their survival.

We who live in industrialized societies sometimes tacitly assume that all hunter-gatherers will inevitably want to "graduate" to practicing agriculture and global capitalism, but as Bujang and many other indigenous families prove, the so-called modern world is not humankind's manifest destiny. Some hunter-gatherer societies, like the Cheyenne, chose to abandon a lifestyle of sedentary farming and return to hunting and gathering. Many others, like the Bujangs, chose to adopt certain elements of Western modernity but not others: they hunt bush pig with a shotgun, but kill birds with blow darts. The path of humanity is ever branching. All roads need not lead to Times Square.

However, as I learned from the Bujangs, the path of modern consumer capitalism—with its endless (and endlessly advertised) comforts and conveniences, its wondrous medicine and magical technology—constantly beckons to hunting-and-gathering societies. Once Western capitalism begins to encroach on their land from all sides, life for hunter-gatherers becomes increasingly difficult—their land base shrinks, government interference increases, traditions fray, local knowledge dissipates, and the pressure to assimilate mounts. Under these conditions, converting to a sedentary Western lifestyle begins to look like the path of least resistance.

When an indigenous community assimilates into the dominant culture, either by force, by desire, or from fears of being "left behind" (a threat the Malaysian government frequently wields), there is a concomitant loss of those threads that hold together culture: language, lore, religious practice, familial obligations, and relationship to place. At its core, the problem facing indigenous communities is mnemonic; the culture, long stored in the collective memory and encoded in the land, is gradually forgotten.

Modern Cherokees hold many of these same concerns, but they

have their own way of fighting the erosion. Unlike the Bujangs, or traditional Navajos like Bessie and Harry Begay—who have retained much of their culture by living far from civilization, shunning most technology, and never learning English—the Cherokees have tried to chart a middle path between assimilation and traditionalism. Virtually from the beginning of the imperial invasion, many Cherokees were quick to learn the English language, utilize modern technology, and adopt European modes of farming and trade, all while fighting to maintain their heritage.

That fight continues to this day. Since language is vital to preserving culture, in recent years the Cherokee—like many other tribes—have founded a slew of language-immersion schools, which help children become fluent in their native language, even if their parents can't speak it. I paid a visit to one such school, the Kituwah Academy in North Carolina. The school was run by a man named Gilliam Jackson. Out of roughly fourteen thousand Eastern Band Cherokees, Jackson was one of only a few hundred left who still spoke the Cherokee language fluently.

At Kituwah, every activity—classes, games, meals, songs—was conducted in Cherokee. Over the entryway to the school hung a printed banner: ENGLISH STOPS HERE. In one classroom sat a pile of colorful wooden alphabet blocks, such as one might find in any preschool, only, instead of the Latin alphabet, they were printed with odd-looking characters that resembled something dreamed up by Tolkien. This, Jackson explained, was the Cherokee alphabet (properly known as the "Cherokee syllabary"). Most fluent Cherokee speakers cannot read or write it, but these children were learning to do both.

The written language of the Cherokee was devised in the early nineteenth century by a Cherokee blacksmith who went by the name of Sequoyah, also known as George Gist. Unable to speak English, Sequoyah marveled at the efficiency of written language, which al-

lowed white people to converse across great distances and, most crucially, to fix knowledge so that it would not erode over time. In the oral tradition, knowledge was a mercurial thing, changing shape as it changed hands. As reported in *The Missionary Herald* in 1828, Sequoyah believed that, “if he could make things fast on paper, it would be like catching a wild animal and taming it.”

Seeing the benefits of such a technology, he set about devising his own code. He began by assigning individual symbols to common words. First he used elaborate hieroglyphs, which, being tedious to draw and memorize, he later replaced with more basic symbols. But with his list of words piling up into the thousands, even those symbols soon proved too difficult to remember. Finally, after much experimentation, he broke the language down to eighty-six spoken syllables, with a different character assigned to each. It took him twelve years to find a workable system.

Once the system was complete, he taught it to his six-year-old daughter, who came to read it fluently. Together, they demonstrated the new system for their neighbors: Sequoyah would ask someone to tell him a secret, he would mark it down on a piece of paper, and then he would ask another person to carry the paper to his daughter, who was out of earshot. Reading from the scrap of paper, the little girl would call out the sentence just as it had been told to her father, shocking many of those present.

Sequoyah’s new syllabary caught on. It was soon being used to record sacred songs and curing formulas. By 1828, a new bilingual newspaper called the *Cherokee Phoenix* was published in an altered form of the syllabary. In the 1980s, the first Cherokee typewriter was invented, and attempts were later made to convert computer keyboards into Cherokee. But, due to mechanical and cost constraints, typing in Sequoyan remained cumbersome until 2009, when a developer released an application for electronic tablets like the iPad that allowed people to easily type in Cherokee.

Jackson said the children at his school had picked up typing in Cherokee on the tablets with remarkable ease. “We have really gotten way into technology,” he said. “All these kids around here, they can text, they can do iPads, they can do computers, you name it. They’re way more advanced than I am. But in terms of being able to identify plants and medicines and foods in the woods, they’ve lost that connection.”

As Jackson was learning, the cultural institutions that European cultures have long relied on to perpetuate knowledge—namely, enormous and intricately organized corpora of texts—cannot properly preserve a form of knowledge that is orally transmitted and terrestrially encoded. Indigenous cultures need both language and land to survive.

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People fighting to preserve indigenous cultures tend to fall into one of two camps. Some believe that technology (being malleable and agnostic) will continue to evolve to better perpetuate elements of indigenous culture, like the Cherokee keyboard, and to situate traditional knowledge in the landscape (using digital maps). Others, like Jackson, counter that without time spent learning directly from the land, no amount of technology would halt the cultural erosion.

Somewhat ironically, given his general aversion to technology, Lamar Marshall had ultimately been converted by the techno-evangelists. In response to the loss of land-based learning, he has begun importing over a thousand miles of trails into digital maps—along with the stories, wild foods, and medicine to be found along those trails—so they could one day be accessed by future generations of Cherokees.

The day after our trip up to Big Stamp, Marshall met me at the Wild South office to show me an early mock-up of the program. Using Google Earth, he had charted a shortcut trail that connected the Raven Fork Trail to the Soco Creek Trail. The satellite images were from the present day, so occasionally, as the yellow path wended

through the green mountains, the gray specter of an asphalt parking lot would appear. The anachronisms had initially jarred Marshall, and he considered using Photoshop to clone trees in over the modern scars, but he ultimately decided against it. The program, he reasoned, should represent the world as it currently is—or rather, as it can be walked.

Into these digital landscapes, here and there Marshall had inserted images that the ancient Cherokee would have found alongside the trail: ginseng leaves, elk, bison, a trail marker tree, intersections with old trading paths. On one hill, called Rattlesnake Mountain, lurked a crude rendering of Uktena, the horned serpent of Cherokee myth.

As it was told to James Mooney, the monster Uktena was known to hide in dark, lonesome passes over the Great Smoky Mountains. One day a local medicine man named Aganuntsi went hunting for the great serpent, hoping to collect the diamond that was embedded in its forehead. He walked south through the Cherokee lands, encountering mythic snakes, frogs, and lizards, before he finally reached the top of Gahuti Mountain, where he found the Uktena sleeping. The medicine man retreated to the bottom of the mountain and made a great circle of pinecones. Inside the circle he dug a deep circular trench, and within that, he left an island on which he could stand. Then the medicine man lit the pinecones on fire, crept back up to the serpent, and shot an arrow through its heart. The snake awoke in a fury and lunged after the medicine man. The man was prepared; he ran down the hill and leaped inside the circle of flames. The snake raced down behind him, spraying venom, but the poison evaporated in the blaze. While the man waited safely inside his ring of fire, the injured serpent roiled in agony, flattening trees. Its black blood poured down the slope, filling up the circular trench. The medicine man waited on his little island until finally the beast fell limp. After waiting seven days, he visited the site where

the serpent lay, and though its flesh and bones had been pecked to dust by birds, one thing remained: a luminous diamond. With that jewel, the medicine man soon became the most powerful man in the tribe.

Encoded within the story of Uktena—which I have greatly abridged here—is an enormous amount of information, both empirical and mythic, all spun into a taut narrative thread. Even on the page, the story hums. One can only imagine how much more vivid it would have seemed if one had heard it while standing on the mountainside, looking out over the treeless expanses swept bare by the serpent’s tail and the lake filled with its black blood.

Marshall’s program was a small but meaningful attempt to re-situate the story in its rightful place. However, it still lacked the immediacy of terra firma. Marshall knew this, so he hoped to one day build an application that incorporated augmented reality technology with stories and maps, so that children could stand on the slopes of Rattlesnake Mountain while watching the tale of the Uktena unfold through virtual-reality goggles, or visit the sacred Kituwah mound and see a digital rendering of the site as it once was, four centuries earlier, aglow with the light of the sacred fire.

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Walking creates trails. Trails, in turn, shape landscapes. And, over time, landscapes come to serve as archives of communal knowledge and symbolic meaning. In this sense, the various cultures I have so far crudely lumped together under terms like *Native* and *indigenous* could perhaps be better described as “trail-walking cultures.” This classification would make modern Westerners, by extension, a “road-driving culture.” The colonization of the New World would not have been possible if Europeans could not harness domesticated animals and drive in vehicles like wagons and, later, trains and automobiles. Today, machines allow us to move radically faster—often along the very

same trails Native Americans once used. But in doing so, we have lost the elemental bond between foot and earth.*

The Blackfoot Indians of North America are an archetypal example of a trail-walking culture. According to their creation stories, the world was shaped by a quasi-divine figure named Napi, or Old Man, as he walked north through Blackfoot country. In the process, he formed rivers, planted deposits of red clay, gave birth to animals. He created plants to feed the animals. Then he created humans to hunt the animals and harvest the plants. He showed humans how to dig up edible roots, how to gather medicinal herbs, how to hunt with a bow and arrow, how to drive buffalo over a cliff, how to use a stone maul, how to build a fire, how to create a stone kettle, how to cook meat. As people moved from place to place in the landscape, performing rituals, telling stories, and singing songs at sacred sites, they reenacted the travels of Napi. "Significantly," wrote Gerald Oetelaar, "the total landscape is necessary to tell the entire story, to complete the annual ritual cycle, to establish the social and ideological continuity of the group, and to ensure the renewal of resources."

"What you've got to realize is that the landscape is their archive," Oetelaar explained to me. "Those places remain alive only as long as people visit them, remember the names, remember the stories, remember the rituals, remember the songs."

Trail-walking cultures often grow to see the world in terms of trails. The Western Apache believe the goal of life is to walk "the trail of wisdom," in pursuit of three attributes Basso translated as "smoothness of mind," "resilience of mind," and "steadiness of mind"—puzzling phrases if viewed independently, but perfectly clear when viewed within a metaphorical context of someone walking

* For the sake of simplicity, I have conspicuously omitted boats—both the canoes and kayaks of Native Americans and the ships of the European colonizers—from this explanation, and elsewhere in this book.

(smoothly, steadily, resiliently) along a trail. The Cree model for an ideal life is called the "Sweetgrass Trail," while the Navajos' ultimate good is a state of peace and balance they describe as "walking the beauty way." A creation story among the Creeks tells how their bellicose ancestors followed a "white path"—a path lined with white grass—which led them across the mountains to their current home, where they encountered a tribe of peaceful people, who were said to have white hearts. The Creeks never fully abandoned violence, but they nevertheless strove to walk the white path.

Among the Cherokee, the proper state of being for an individual is called *osi*, and the ideal state of all things is called *tohi*. According to Tom Belt, the words *osi* and *tohi* have no direct translation in English. *Osi* refers to the quality of a person who is poised on a single point of balance, centered, upright, and facing forward. *Tohi* denotes something, or everything, that is moving at its own speed, utterly at peace. An old man shuffling along the sidewalk can be *tohi*, as can a young warrior running at breakneck speed. Belt compared it to the flow of a stream, which runs fast one moment and slow the next, always moving exactly the pace that the land demands. When combined, an image of the ideal emerges: a person, upright, balanced, moving at a natural gait. Such a person is on what Cherokees call the Right Path, *du yu ko dv i*.

I asked Belt how physical trails—the dirt-and-stone paths people actually walk—figured into this metaphorical framework. Belt said that when he and his father would go out hunting in the woods, his father would always take time to describe what events had occurred in a given place. "Someone lived here. Someone killed a deer here. On and on and on," he said. "There's always some story about that place that's going to reconnect you with it and make it yours."

What, ultimately, connects us to land? For most animals, I suspect the answer is a mixture of mental familiarity and symbolic marking. The deer stumbles into a strange new field. It begins to explore, with

halting steps, stopping often to sniff, to peer, to listen. Over time, though, it comes to recognize certain features. It learns the location of good forage. It marks certain areas with pheromones, which act as chemical signposts. It begins to move more fluidly. Lines of least resistance are discovered. Along these flow lines, with enough trips, a trail appears.

When humans make themselves at home in a new landscape, they initially behave much like deer—seeking out resources, learning routes, making signs—but over time, that field acquires an additional layer of significance. The land grows to contain not just resources, but stories, spirits, sacred nodes, and the bones of ancestors. At the same time, a deep recognition grows among the people that their lives depend on the products of the soil. People and land become interwoven, until they are nearly indistinguishable: it is no accident that, according to a striking number of cultures around the world, the first humans were sculpted from mud or clay. One version of the Hopi creation story tells that humans were created by two gods named Tawa and the Spider Woman; Tawa thought up the notion of the first man and woman, and then Spider Woman fashioned them from mud, declaring, “May the Thought live.”

The trails we create from the soil are likewise born of a mixture of mud and thought. Over time, more thoughts accrete, like footprints, and new layers of significance form. Rather than mere traces of movement, trails became cultural through-lines, connecting people and places and stories—linking the trail-walker’s world into a coherent, if fragile, whole.

CHAPTER 5

THE MODERN hiking trail is an uncanny thing. We hikers generally assume it is an ancient, earthborn creation—as old as dirt. But in truth, hiking was invented by nature-starved urbanites in the last three hundred years, and trails have sprouted new shapes to fulfill their hunger. To properly understand the nature of a hiking trail, one must trace the origins of that yearning, back through those early hikers to their ancestors, who set off the chain of innovations and calamities that would gradually distance humans from the planet that birthed them.

I once asked a young Cherokee woman named Yolanda Saunooke, who works at the Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians, if she knew any hikers. She thought for a moment and then replied that she and her friends had spent much of their childhoods running around in the woods. “I don’t know if that’s considered hiking—playing on your own land, considering that it’s mountainous . . .” she said. That phrase, “on your own land,” snagged in the tissue of my brain. Could one go hiking on one’s own land? If so, what differentiates a hike from a very long walk?