After

By Simmons Buntin

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After the fall, I was frozen. But my shock—the suspended second or hour or millennium, for time was everything and nothing, the dim room a universe collapsing in on itself—was infinitesimal compared to the horror on my daughter's face. And her cuts and blood. And the glass, its silver shrapnel scattered around her eleven-year-old body. And her body, angular yet sprawled, the swimsuit she had just put on to dash out to the pool pierced, like her flesh. And her flesh, cut to the bone—the exposed bone on her shin as white and smooth as agave root. And how she lifted herself up almost immediately, stood there swaying as if rooted in place. And the silence of her shock after the awful crash: no scream accompanying her plunge through the wide, transparent door that divided dark living room from dazzling sunroom—the thick, untempered glass scything the air as it severed my daughter. And my daughter: fallen, and somehow risen.

"Call 9-1-1!" I yelled, finally unfrozen, before running to my daughter and her breathless *Oh my god oh my god oh my god*. Her sapphire eyes stared through me as the shock took and then released her, her body collapsing across the door's threshold and into my arms. I lifted her from the glass as the other parents rushed to our aid, helping to hold her, to soothe her, to tourniquet her leg and compress the punctures on her arms and chest in clothes stripped from their own bodies—gauzy blouse, gray T-shirt—their swift actions miraculous as my daughter and I trembled together. Then I noticed the dark-haired boy, a fellow cast member from her

children's acting troupe, a boy I did not know but who—himself trembling—held up her leg, his eyes full of fear and beautiful determination.

"You're going to be fine, sugarbug," I said to Ann-Elise. "You're doing so well, sugarbug." Reassuring us both, I hoped, before and after the paramedics rushed in, their blue uniforms in sharp contrast against the chrome rails of the gurney, my daughter's linen-white face beneath a bob of sandy hair, the blood blooming like scarlet peonies through the cloth above her wounds. Was I then yet thinking about my daughter's recovery—before I had called her mother or raced the ambulance to the hospital or returned that evening to collect my daughter's things from the unfamiliar house hosting her final cast party? Had her grief yet set in? Was there any spark of hope on a horizon that was suddenly as dark as ashen sky?

After the eruption, Mount Saint Helens left a seemingly devastated landscape for miles around the southwestern Washington volcano. More than 230 square miles of forest were buried or blown down or burned, temperatures in the pyroclastic flow reaching 1,500 °F. A massive landslide traveling fourteen miles down the North Toutle River scoured everything in its path and buried the river itself to an average depth of 150 feet, the resulting mudflows extending even farther, disrupting commercial shipping traffic on the Columbia River fifty miles to the west. A dark column of ash and dust rose fifteen miles high, spewing volcanic rock called tephra around the mountain—its collapsed summit now some 1,300 feet lower—and depositing ash across seventeen states once the toxic plume reached the stratosphere. One hundred eighty-five miles of roads and fifteen miles of railroad tracks were destroyed or severely damaged. In nearby Spirit Lake—once a sublime, resort-dotted getaway nestled in a forest of old-growth Douglas firs—a wall of water more than eight hundred feet high washed over an adjacent ridge as the mountain's

debris avalanche crashed into the lake, which settled some two hundred feet higher in elevation and nine hundred surface acres larger, a sprawling mat of those massive, charred fir trunks now floating atop the poisonous stew.

Fifty-seven people died in the blast, the eruption continuing for nine terrible, awe-inspiring hours. Of course, the numbers were much higher for animals. Scientists estimate that five thousand deer, fifteen hundred elk, two hundred black bears, and fifteen mountain goats died, notes author and biologist Eric Wagner, whose book *After the Blast* details efforts by researchers to understand the landscape's ecological recovery following the May 18, 1980, eruption. "Most died when the lateral blast cloud swept over, crushing them under the falling forest, striking them with flying stones, or picking them up and hurling them bodily through the air," he writes. "Others succumbed in the hours that followed, their pelage burned and their lungs seared by hot volcanic gases, or they suffocated in the thick ashfall and were buried under nearly three feet of tephra."

But I knew little of the mountain's destruction thirty years later—one year after Ann-Elise's fall through the plate-glass window. In 2010 I was invited to join a handful of other writers and artists for the Mount St. Helens Pulse, an every-five-years gathering of scientists sponsored by the U.S. Forest Service's Pacific Northwest Research Station and Oregon State University's Spring Creek Project. I had done little research on the volcano prior to my arrival that late June except what I could easily find online. Indeed, until the invitation I'd hardly considered Mount Saint Helens at all. Yet the eruption is part of our American landscape lore, even in my long-dormant volcanic landscape of the desert Southwest, where I am surrounded by the remnants of ancient activity. Just north of our home in Tucson, for instance, Picacho Peak

rises an abrupt 1,500 feet from the desert floor, a geologic fault of tilted, eroded rock interlaced with rich veins of lava some 22 million years old.

Unlike the scientists, who were gathering to check their plots and, in some cases, find the next generation of researchers to take over their many years of work, and unlike most of the other authors and artists, who came as nature poets and environmental essayists and landscape artists, my creative interests leaned toward the built environment. That is, I wanted to know what this posteruption landscape could teach our built landscapes about recovery—from disasters both natural and human-caused. How, for example, does wholesale trauma turn to trust and rebuilding? How do we tap community resilience in the face of devastation?

After the fire, Patrick Dibala had no choice but to leave his home. On September 7, 2020, winds reaching seventy-five miles an hour swept through central Oregon's McKenzie River Valley, knocking a tree into high-tension powerlines. The resulting spark ignited a wildfire near the hamlet of Rainbow that funneled west down the valley—a literal firestorm—ultimately burning more than 173,000 acres and destroying more than 700 buildings and several communities. The Holiday Farm Fire scorched entire forested mountains for twenty-seven miles on both sides of the river, and burned for nearly a month. Dibala's home near Blue River was not one of those that was lost, though he told me that the heat from the wildfire melted the vinyl surrounding his windows and cracked another while the fire otherwise incinerated every building, pumphouse, vehicle, and piece of machinery around.

"Our house survived because, just the day before, I climbed our trees and lopped off the lower branches," he said to me on an unseasonably warm day in July 2023, pointing to his white house, the only building standing among the only thriving trees in the clear-cut field before us.

That burned and logged field rose to a burned and unlogged hillside, its second-growth Douglas firs charred, dead but still standing, a spritely understory of bigleaf maples, fireweed, and invasive Scotch broom greening the ground in contrast to the black trunks and deep blue sky. "I'd cleared most of the other trees thirty or forty feet out from our house years before, and I'd been watering the grass every day. We were lucky."

The business he and his wife opened in 1993 in Blue River was not so lucky. Like every other building in town, Christmas Treasures burned to the ground. Only a brick chimney, an indistinct pile of rubble and ash, and half a dozen sooty concrete Santa sculptures remained. I met the man who himself looked a bit like Santa, a cheerful red face and short-clipped white beard beneath khaki ballcap, just south of the nearby Blue River Dam and Lake. I was viewing the burnscape from the roadside, where I held up my iPhone to identify the calls of songbirds. As he walked past, he asked what I was up to. I had arrived three days prior for a weeklong stay at the H. J. Andrews Experimental Forest. My first evening I was serenaded by a pair of Swainson's thrushes as I walked a gravel road among a tangled stand of moss-draped Douglas fir, hemlock, red cedar, maple, and yew. Theirs were the only birdcalls I could discern. On the burned edge of the recovering forest, however, my Merlin app identified nearly a dozen birdsongs: Western tanager and common yellowthroat, black-headed grosbeak and cedar waxwing, MacGillivray's warbler and white-crowned sparrow, house wren and Swainson's thrush, spotted towhee and lazuli bunting. I only saw a bird or two, and wasn't close enough to identify any of them by sight, but their emphatic calls were a welcome lushness I had not expected on this traumatized landscape.

"A number of people watched the fire, scared out of their wits, from right over there," Dibala said, pulling me away from the birdsong as he pointed to the parking lot at the dam's

edge. Behind the azure water of the reservoir, high this year thanks to one of the wettest winters on record, rivulets of dead but standing trees striped the otherwise green mountains, likewise victims of the 2020 fire. “They thought they were going to die.”

“It all started on an evening like any other,” he continued, “except the wind, and our power was out, which happens.” Power outages caused by fallen branches are common during high winds in the McKenzie River Valley. Though utilities often cut power during severe windstorms to avoid exactly what happened farther up the valley—a live wire going down and sparking a forest full of tinder-dry undergrowth—local utilities had not deenergized systems in the fire area until early the next day. “I was on the porch, sipping whiskey, you know, when I got a text from my son that they were evacuating. I got up and walked around the house. It was dark out, but I could see the orange glow of the fire over that ridge,” he said, pointing to the charred hillside to our east.

Seeing the fire crest the ridge, he ran to his nearby rental house and alerted the residents, who left immediately. He saw that his other neighbor was home, but she refused to leave, calling the evacuation “only a precaution.” She changed her mind quickly, Dibala said, when he urged her to step outside, the flames growing higher. “I jumped into the car with my wife and we drove into town, but so much was already ablaze,” he recalled. “The store was still there, so we grabbed some paperwork, a computer maybe, and raced back to the house. My wife looked up. ‘How could there be helicopters?’ she asked. But then we realized they were embers, swirling down all around us.” By that time, the route north on the U.S. Forest Service road that runs between the reservoir and the Andrews Forest was backed up with others who sought their own escape. They had no choice then but to drive southwest, back toward the flames and their now-burning store. They reached Highway 126, turned west, and then, as Dibala told me, “we seemed

to be traveling with the fire, smoke and ash as we went, along with everyone else, bumper to bumper." With flames in their rearview mirror, they stuck to the winding two-lane highway that edges the river and finally, frantically, made it to the Willamette Valley and Springfield and safety.

The Andrews Forest sustained damage from the fire as well. Approximately 400 acres burned several weeks after the initial, two-day windstorm from the east diminished and more seasonal, less intense winds from the southwest kicked in. That's when the fire turned back on itself and, in late September, burned up and over the mountainside on the Andrews's southern edge, where fire lines dug by hand and bulldozer were repeatedly jumped—until, finally, they weren't. Though most of the trees in the Andrews burn area survived, the Holiday Farm Fire wasn't fully contained until smoke from the fire cast a pall over the area—reducing the overall temperature—and wildland firefighting crews could finally turn their full attention to the Andrews, which was the last area to extinguish. The rest of the valley, which includes the damaged but still-standing home of environmental writer Barry Lopez several miles west, seemed lost. "The land around us as far as we can see looks flayed," Lopez wrote on Facebook on November 5, 2020. "For ten miles in both directions along the river from us, all that stands where a whole community once lived are bare chimneys. The devastation for some is catastrophic and irreparable. This part of the western Cascade Mountains was declared a National Disaster Area in September. The severity of the fire is widely thought to be the direct result of a climate change event."

I didn't have to prompt Dibala for his opinion on the climate crisis. He offered it up freely, mentioning the burned timber he harvested on his eight acres of land, the trees he replanted in April 2021, 40 percent of which failed in the deadly heat dome two months later,

when temperatures reached 110°F, 30 degrees above normal. “I guess it’s all on account of climate change,” he said. “How will we survive?”

After the fall, in the blunt brightness of the emergency room, I stood with Billie beside our daughter’s gurney. The doctors and nurses moved swiftly to attend to Ann-Elise in the chaos of that place. Despite the crush of the noise—the tings and tones and alerts of the machines she was connected to, the groans of nearby patients, Ann-Elise’s frightened babble as she swam in and out of consciousness—the doctors and nurses worked cautiously yet quickly. The surgeon drew out shards of glass like precious gems, then stitched her shin and knee knowing they’d have to reopen the wounds the next day to fish out the tendons and deeper glass. The tendons in her leg had recoiled once severed, snapped like a powerline in a windstorm, so that they curled beneath her flesh, her foot now limp, no spark of movement possible.

When her eyes opened, her pupils were contracted, a wild animal in sudden light. “Mommy, Daddy, where are you?” she asked.

“Right here,” we said.

“Why is the car moving?” she asked.

“We’re in the hospital,” we assured her.

“Why is the room moving?”

“It’s not moving, honey.”

“Who is that? Where are we? Where are you?” And then her heartbreaking sobs before she’d lose consciousness a few minutes more and, again, “Mommy, Daddy, where are you?”—the anesthesia her bitter friend.

In the curtained cubicle next to us a man moaned and flailed and then fell silent. Surgeons scrambled as the lead doctor screamed for silence. Nurses slipped in and out of our stall, the ER suddenly quiet except for the frantic murmuring of the doctors next door and the constant beeps of who knows how many heart monitors. Then the biker, who flew in the last light of the afternoon before tumbling to the asphalt, moved no more.

I could not sleep that night in the chair next to Ann-Elise's bed, once she was moved to her own hospital room, as much to ward off my own nightmares as hers. By morning I believed only in the precise schedule of nurses, the persistence of fluorescent lights, and the doctor we met the day before. Cool as a leading actor, the orthopedic surgeon warned me that the day's operation could fail—if the tendons retreated beyond mending or the nerves did not properly respond, he said, she might lose the foot's function. He then took my hand, mentioned his daughter of the same age, and pointed me to the lounge where visitors gathered in twos and threes, waiting out their loved ones' diagnoses, huddled in their own theaters of victory and defeat.

It was not her leg wrapped and immobilized, nor the tubes draped like tendrils from her body, nor even the black stitches on her head and shoulder, her wrist and thigh. Rather, it was her bruised eyes and cracked lips that warned me of the arduous recovery before she woke from her second surgery. I took her hand as her eyes found their focus. She did not recall the nightmares, but her pain was intense—"Nine on a scale of ten," she breathed, as the nurse increased her dosage and the pain fled to her head and she vomited through the afternoon. Yet the surgery had succeeded—with a splint in place, followed soon by her first cast, she could begin moving again through the hospital, through our house, through a summer now lost, yet another season of childhood severed by the swift blade of one hand or another.

But the scythe of her fall continued to cull long after my daughter's return home. She endured her wheelchair and then her walker and the physical therapy along the way, but she faltered under the bruised plume of darkness as her nightmares returned. Each evening she tumbled into that foreign house, adrift in the shadow line between dark room and bright, the glass shattering and resealing, her body folding and unfolding—the fall and pain real until she woke in a panic, drenched in sweat and tears. And when her fellow actors and their parents visited, their eyes held tears too as they recalled her plunge, for they knew more about her accident than they saw, and they saw more than they said. Ann-Elise also knew how close the call had been—a puncture this way or that in her chest, the cut above her eye just a half-inch lower, the wrist slit a slight bit deeper . . .

But she lived, and if she didn't thrive right away, neither did she wilt. Wheelchair bound, she learned on our family reunion in San Diego two weeks later that special wheelchairs with wide, royal blue plastic wheels are available for cruising across the sand. Back at home in Tucson, I'd race her down the sidewalk, swerving past puddles following monsoon rainstorms, cornering like a barrel racer, until she had worked up the strength and determination to push herself along. After three weeks the orthopedic surgeon cut away her cast, exposing the flesh and black wound that curved across her pale shin like a centipede—each stitch a violet leg, each segment a stain of dead skin or angry scar. She turned away despite the doctor's guarantees that the cleft would fade, words spoken as he plucked the stitches from ankle to knee and spun her second cast in wild pink.

If we do not understand that fairness dissolves when healing comes to court, then we learn it fast, for the task of recovery is often tougher than the injury itself. I did not ask her if the pain of that first step was worse than her fear of pain. I did not know if her faith would shatter

like untempered glass, shards of doubt lodging in tissue and bone. My hope was that she would step through not unscarred, of course, but otherwise unscathed, leg teetering but still standing, hands locked around her silver walker, head and eyes raised in bold conviction. That she would take that first step, painful as it no doubt was, and then another. Perhaps recovery is that way—the flight to forget fuels the fight to push forward, and forward again.

After the eruption, the first scientists to visit Mount Saint Helens didn't know what to expect, beyond bleakness. And with one or two exceptions—a single fireweed shoot somehow poking through the moonscape of pumice below the volcano's crater, or the small, dark rubble of a gopher's mound atop the tephra of a scorched and needleless fir forest—that's what they found. Going into it, they figured that the mountain and surrounding area wouldn't recover for a century or more, and when it did, that recovery would come from the edges. But almost immediately they knew they were wrong. "Right off, all of us smart ecologists realized we didn't have the correct working hypothesis," says Jerry Franklin, an ecologist with the U.S. Forest Service who with other scientists visited the blast zone just after the eruption, the crater still steaming, the ground unsettled.

"The fireweed that Franklin saw not only changed the ways that he and other ecologists approached the eruption and the landscape it created, but also led to new ways of thinking about how life responds to seeming total devastation," writes Wagner in *After the Blast*. Fred Swanson, the tall, mild-mannered Forest Service ecologist and research geologist who served as our generous guide for the 2010 Mount St. Helens Pulse, agrees. He was with Jerry Franklin on that first helicopter ride, and has studied Mount Saint Helens and other volcanoes from that day forward. "My preconceptions of how volcanic landscapes behave in the aftermath of an eruption

were blown away like the top of Saint Helens, and I've been reconstructing my understanding ever since," he told us as we piled into the van that took a dozen excitable writers and artists on that first morning's tour around the mountain.

"In overwriting the landscape, Mount St. Helens had presented ecologists with what was in effect a huge natural experiment," writes Wagner. That natural experiment revealed that life in the blast zone has emerged rapidly, though certainly not comprehensively. It returned, in a way, but mostly it already existed in tiny semblances here and there—protected from the blast by snowbanks, brought forth in new soil pushed up from surviving pocket gophers, dropped in on a spider's floating web. The landscape's repopulation wasn't primarily from the edges of the blast zone inward—though there was some of that, exemplified by the nesting horned larks and chicks we saw with ornithology doctoral student Elise Larsen on our last full day on the mountain (the birds are not otherwise native to the region; the open, rocky expanse provides new opportunities). Rather, species recolonized the most impacted area—the so-called Pumice Plain—through tiny oases of lupine communities that had, over the thirty years since, grown together not completely but still substantially. And by then, a few silver firs, huckleberry bushes, red alders, and willows had started to take hold on the plain, particularly where it met Spirit Lake, which was by then anything but poisonous.

The vast mat of scorched firs—weathered to massive logs of driftwood after floating the lake for three decades—remained atop Spirit Lake, and though interesting when viewed from the Pumice Plain, was downright bewildering, mesmerizing even, when seen up close. We hiked the switchback trail down to Spirit Lake from the pullout on the ridge above. Though no tall conifers yet grew, the alders and maples were vigorous, providing some shade for our sunny start, while at our feet pearly everlasting, Indian paintbrush, and penstemon colored the trailside. By the time

we reached the lakeshore, a mat of gray clouds had covered the top of Mount Saint Helens, though from the far edge of the lake we could still see the Pumice Plain and Loowit Falls at the volcano's dark base. Before the hike, Swanson had spread out a map of the vicinity, demonstrating how the blast with a force five hundred times that of the Hiroshima atomic bomb had reshaped the lake and surrounding ridges—the "blowdown," the trees still standing but burned to their cores, the lake's outlet to the river dammed under countless tons of debris. At trail's end, he set us loose to experience that power firsthand. But in the cooling weather and mild breeze, I felt more harmony than fury.

I pushed myself atop one of the larger floating trunks and found I could balance my way across the mat—not too far out, for the mat regularly drifts from one shore to another. Swanson forbid us from swimming, and urged extra caution should we accidentally find ourselves in the water. The logs were too large to easily climb if one of us fell in, and they would be unforgiving if we got trapped between them. The temptation to explore this disaster-formed barge of several thousand logs was too great for most of us, however, and I'm happy to report that though we lingered for hours, none of us fell in.

As I settled onto a broad log close to shore, I considered our assignment as visiting artists. Our charge was not only to learn from the researchers and observe the natural experiment Mount Saint Helens presented—researchers demonstrating their techniques and reviewing their long-term results at stop after educational stop, viewpoint after stunning viewpoint, hike after delightful hike—but also to artistically interpret the mountain's recovery, to share its story through literature and art. And that interpretation began with a blunt conclusion, impressed upon us by every scientist we spoke with: what is happening at Mount Saint Helens is not recovery. It is *renewal*, for the landscape will never return to its former self, even over centuries—and as the

most active volcano in Cascadia, erupting on average every 150 years, it never has. That's a powerful personal lesson in resilience—how we not only heal following a traumatic event, but also how we are changed along the way; how we can never return to our former selves. And it's an important lesson for humans more broadly as we consider how to rebuild communities following natural disasters, particularly in light of a rapidly changing climate. Should we attempt a return to the way our communities were built previously? How has the devastation transformed us, made us stronger, given us the wisdom (or imperative) for evolving our places in spite of the patterns, structures, and efficiencies of our former ways?

After the fire, the town of Blue River is rebuilding. Yet planners, developers, builders, and ecologists must recognize these built and natural communities are forever changed. Residents have no choice but to adjust. Patrick Dibala said as much to me as we looked across the charred trees along Forest Service Road 15: "I never thought it would happen to us. I don't think things can go back to normal."

Fred Swanson knows there's never truly been a *normal* in this volatile landscape, and though Blue River is far from Mount Saint Helens, the entire Cascades Range is volcanic, full of repeating destruction and renewal if one takes a long enough view in time. Indeed, his research shows that while some Douglas fir stands in this region have burned on average only every four hundred to five hundred years, others have burned as frequently as every one hundred to two hundred years. Still others in what he calls "refugia" can live to be as old as eight hundred years, untouched by fire. As a scientist, he finds that change fascinating—it is, after all, his life's work. But as a resident of the Willamette Valley and longtime researcher at the Andrews Forest, he recognizes that with increasing temperatures, wildfire is more likely than at any other time in

recent human history. He also realizes that how humans prepare for and respond to environmental change will determine, ultimately, whether humans survive. One response Swanson has long called for is using stories to effectively and broadly communicate the outcomes and urgencies of scientific research—and who better to tell those stories than writers and artists? That's why, as part of the Spring Creek Project, he invited us to Mount Saint Helens, why he is working with photographer David Paul Bayles to document renewal following the Holiday Farm Fire at the Following Fire website, and why he has invited me (and many others before me) to a residency at the H. J. Andrews Experimental Forest.

For years I had pined to visit this long-term ecological research site, a 15,800-acre forest encompassing the Lookout Creek watershed in the Oregon Cascades. Data has been collected, curated, and archived at the Andrews since 1948—and will be collected far into the future. Though research has spanned such broad categories as forest management, streams, watersheds, and wildlife, the "most emblematic long-term experiment," as Swanson says, is the log decomposition study, a two-hundred-year experiment of 530 decomposing logs each five and a half meters long placed at multiple sites around the forest. Initiated in 1985, the study incorporates four tree species that, it turns out, decay at different rates, ranging from (relatively) fast to slow: Pacific silver fir, western hemlock, Douglas fir, and western red cedar. Studies on the decomposing logs include forest respiration, carbon sequestration, and microbial and insect ecology. The results of these studies have "influenced the science of carbon dynamics at local to global scales and management of dead woods as an ecosystem component," according to U.S. Forest Service literature. The science has created its own term, *morticulture*, coined by recently retired Oregon State University biologist Mark Harmon, whose seminal research at the Andrews

demonstrated that leaving dead trees in the forest replenishes soil, provides habitat for numerous species, and creates a more diverse, resilient forest ecosystem.

Though Swanson couldn't join me during my visit to the Andrews in July 2023, former Spring Creek Project director and fellow Mount St. Helens Pulse participant Charles Goodrich led me on my first visit to the log decomposition study site, one of several "reflections" spots for artists now that the forest is also designated a Long-Term Ecological Reflections program site. We hopped into his Prius from the Andrews Forest headquarters and drove several miles to reach the site off one of the many Forest Service roads that bisect the forest. It had been several years since Goodrich himself had been to the site, but his memory proved true as we parked at a small pullout past a single-lane bridge and found the overgrown trail.

Immediately we were immersed in the dense forest, a soaring, sun-dappled overstory of Douglas fir, western hemlock, and western red cedar above vine maple, bigleaf maple, moss-draped Pacific yew, dogwood, huckleberry, sword fern, and too many other plants—and shades of green—for me to name. The difference between this leafy, mature forest and the burned forest only miles away was dramatic. As we hiked, Goodrich tested the red huckleberries by touch before declaring them not quite ripe enough to eat. "I made a promise long ago never to pass up a huckleberry treat," he said with a smile, his gray goatee blending to white, green eyes beaming. We stepped over fallen hemlocks and maples and ducked under gargantuan trunks of downed Douglas fir, rich in moss and insects and spiders, before he stopped me abruptly and said, "We are now entering the sanctuary."

Here the trail opened onto a soft floor of moss and conifer needles surrounded by old-growth Douglas fir, some easily ten feet in diameter at the base. On the ground, dozens of moss- and lichen-covered logs splayed, many topped by large, white PVC pipes used to collect

exhalations of carbon dioxide from the decomposing logs. Here and there a standing tree wore a tarnished metal tag, and faded pink flags marked other study specimens. The setting was altogether magical, though less fairy tale than scientific tale, for the mark of investigation was all around yet did not diminish the verdant beauty of this research-centric old-growth forest—a sanctuary indeed.

Goodrich opened the book he'd brought along—*Forest Under Story: Creative Inquiry in an Old-Growth Forest*, which he co-edited with Fred Swanson and Nathaniel Brodie—and read aloud Jerry Martien's poem, "return of the dead log people," a tradition, I gathered, when he introduces someone new to the log decomposition study site. The poem got me in the right spirit, particularly as the ancient yews cloaked in the moss called old man's beard seemed to circle us like a scene out of a J. R. R. Tolkien book. I half expected them to walk toward us, becoming Ents, the mythic tree people of *The Lord of the Rings*. And though they didn't move, Goodrich did share their plight of the 1980s and 1990s, when the small, drooping, slow-growing tree was poached widely across the Pacific Northwest for its bark, which proved to be the only natural source of Taxol, a drug used to treat breast, lung, and ovarian cancer. Now designated as "Near Threatened" on the IUCN Red List of Threatened Species, the ruby-and-chestnut-barked tree—which is slow to rebound from poaching and other disturbances, including fire—is no longer sought after for pharmaceutical purposes because a less costly synthetic drug has been manufactured. Goodrich and I agreed that, instead, we much preferred one of the Indigenous uses for the tree: the Puyallup, Klickitat, and Cowlitz peoples selectively harvested yew to craft bows from the strong wood, which they then strung with animal ligament. We also acknowledged the irony of the bark's use as a medical treatment when other parts of the tree, and particularly the seeds in their bright red arils, are highly toxic.

The day after my conversation with Dibala, I returned to the log decomposition study site alone. I brought more poetry to read—Anne Haven McDonnell's powerful *Breath on a Coal*—before reflecting on fire and morticulture in the context of landscape renewal. Such a sacred place seemed like it could and should last forever; the forest was too peaceful, with only the low buzzing of flies and high-pitched call of a Pacific-slope flycatcher interrupting my thoughts, and delightfully so. But as the unseasonal heat of the previous few days reminded me—leading the Forest Service to increase the fire risk from high to very high, placing additional limitations on forest use—no place is immune from the risks of damage or decay, if not outright destruction. Yet with education, smart planning, and good storytelling, can we not reduce that risk and, when a catastrophe does befall us, build back more wisely, where building back makes sense?

Even then, if we somehow get it all right, I wonder too about grief and hope. I don't really believe that time heals all wounds, but it does take time to properly grieve and restore ourselves after trauma, and even then we must be prepared for the unexpected trigger that can throw us back into deep grief, or the next traumatic event itself. How we pull ourselves up—more difficult than climbing onto a rolling log drifting atop a cold mountain lake, no doubt—may indicate how we find and keep hope.

"There is always hope," says Aragorn in Tolkien's *The Twin Towers*, as Helm's Deep prepares for siege. But is there? Dibala, despite his cheery face, seemed hopeless at times as we spoke, asking what we'd do if we lost our water, how we'd feed ourselves, where we'd go—not exactly rhetorical questions. Here, then, I think of another quote, by Barry Lopez, before he passed away three and a half months after the Holiday Farm Fire: "I would ask you not to give in to the temptation of despair." But how do we not give in, in a world of radical environmental and geopolitical change, the climate crisis upon us?

Folk singer Joan Baez may guide us there: “Action is the antidote to despair,” she says. Ann-Elise put one step forward, then the other, until she could walk again, until she could run. Researchers worked with politicians to permanently protect—and study long-term—Mount Saint Helens, establishing the Mount Saint Helens National Volcanic Monument on August 27, 1982. Dibala planted and then, when nearly half of the trees died from extreme heat two months later, replanted again the following spring. A forest ranger in Willamette National Forest’s McKenzie River Ranger District told me the Forest Service is evaluating “assisted migration”—planting more drought-tolerant, eastern Cascades conifers where the forest burned on the west side of the range in light of increasing temperatures. Which is to say: we take action.

Six years after the fall and thirty-five years after the eruption, I returned to Mount Saint Helens. Ann-Elise, then seventeen years old, joined me. Though some of the participants in the 2015 Mount St. Helens Pulse had changed—a few scientists by then retired, a new generation of students eager to conduct research, several different writers attending for the first time—Fred Swanson still led the site visits, and Charles Goodrich once again joined us as the Spring Creek Project liaison. They were both as sage and encouraging as before, a lovely combination to lead our new, or in some cases renewed, explorations. The journey for Ann-Elise following her accident had often been rocky. Her scar had lightened but persisted, as did a large area of pain and numbness on her leg and foot, though she otherwise regained full mobility. I wondered, however, if the trauma had resulted in longer-term psychological challenges still to be resolved. Or perhaps, like so many of us at that age, she was simply a stubborn, rebellious teenager, a dose of anxiety added in for good measure. More recently, she had also been afflicted with an undiagnosed illness that limited what she could eat and, many mornings, how long she could

keep it down. My hope in bringing her to the volcano was both to get her out of the routines and ailments back at home and to foster her passion for science, for she had spent the spring volunteering at a wildlife rehabilitation center in Tucson and planned to major in biology when she attended college in the fall. What better place could there be to immerse her in science than Mount Saint Helens, under the tutelage of some of the world's premiere disturbance ecologists?

Following our three-day drive from Tucson, Ann-Elise and I settled in among the many other campers at the Tower Rock U-Fish RV Park in Randle, Washington. Located halfway between Mount Rainier and Mount Saint Helens, it was the only campground spacious enough to host the Pulse, which seemed larger in 2015 than 2010. After raising our tent just across from the campground's stocked pond, we learned that "U-Fish" applied mostly to a pair of resident ospreys, who every evening just before sunset dived from their perch on a Douglas fir, more often than not snagging a silvery trout as they skimmed the water with talons at the ready before rising and returning to a tree. Though this scene was perhaps commonplace for many of the biologists at the Pulse—and frustrating for the campground owner, who complained about losing fishing revenue—my daughter and I cheered, if quietly, every time the raptors scored a fish. Ann-Elise had worked with several injured birds in the spring, including a chatty raven, and a family of Swainson's hawks saved from the local air force base, but water-loving ospreys are rare in the desert Southwest.

At the campsite we also explored a trail to the nearby Cispus River, where Ann-Elise dipped into the rushing water tinted by glacial silt, delighted in this unfamiliar landscape—despite an earlier run-in with stinging nettles. "Dad, I found a raptor feather!" she called from the streambank, holding her new prize high. Could this wild welcome be a precursor of a new and

more empowering time, as she transitioned from her own injuries into a renewed self? Was a dose of nature all she would need—one more action to feed her hope?

Because Ann-Elise and I had a smaller window on this trip, just three days compared to the full week of the Pulse, we participated in only two site visits: Spirit Lake and the Pumice Plain. At Spirit Lake—the log mat as fascinating for my daughter as it was for me—I realized just how out of shape I'd gotten in the past five years, as I huffed on the slow hike back up to the ridge. "Move it, Dad!" Ann-Elise said each time I paused, teasing at first and then more earnestly the higher we climbed. Clearly her injury hadn't negatively impacted her cardio, as she trotted up the steep trail as if it was even ground.

While Spirit Lake was formative in my first Pulse, the Pumice Plain with its surreal lupine bloom and unobstructed view of the volcano's icy, ashen crater was transformative. I wanted Ann-Elise to experience the magical place I hiked with poet Derek Sheffield, essayist Elizabeth Dodd, and Mount St. Helens Institute director Jeanne Bennett; the place where special access must be granted; the place that changed not only the perspective of ecologists Jerry Franklin and Fred Swanson after they first touched down but that revolutionized disturbance ecology altogether.

On my first visit, Bennett had driven us to the Pumice Plain in her Subaru Outback on the thin and, by all appearances, crumbling dirt road that skirts a mountainside. With a sheer drop-off, gashes and boulders to evade, and a slight slope toward the edge, the milelong trek was slow and unnerving. One wrong turn and the car would tumble a thousand feet; there would be no recovering from that trauma. In 2010, when she drove in, my were eyes locked forward to quell my acrophobia. Perhaps trusting our two feet more than four tires, Derek, Elizabeth, and I decided to walk the thin road back. In 2015 I was in the driver's seat, my Subaru Forester

carrying not only Ann-Elise but also Derek, who like me returned for his second Pulse, and Andy Gottlieb, a poet from Southern California attending for the first time. On the drive from the campground we'd had to pull over for Ann-Elise to vomit, her stomach upset once again, the cause still unknown despite an endoscopy two weeks earlier. "I'm alive," she said, almost reluctantly, when she slumped back into the car. I placed my hand on her shoulder in what I hoped was a comforting way and said what I meant, "I'm sorry," recognizing that was little relief for the illness and anxiety that blanketed my daughter.

Before passing through the gate that restricts access to the Pumice Plain, ecologist Charlie Crisafulli stopped each vehicle, a more serious look in his eyes than I had seen before, urging extreme caution. Like Fred Swanson and Jerry Franklin, Crisafulli had built his career as a researcher at Mount Saint Helens and was the nucleus of the vibrant, widely dispersed volcano ecology community centered there. I don't recall his exact words, but in effect he said, "Don't fuck up." I do recall, once on the road, that very real drop-off and very noticeable slope, and I recall looking in the rearview mirror to see Andy praying, though I'm not certain he is a religious man. No one spoke a word as the Forester crawled around the mountain and out onto the broad, gravel parking area, where we all finally exhaled.

Already I could see more impressive growth around the Pumice Plain since 2010. Still largely devoid of conifers, more shrubs had moved in, though as Crisafulli shared, the resurgent elk population was keeping the plants in check more than might otherwise be the case. Wolf reintroduction, anyone? Though we couldn't spot any elk—the herd now larger than preeruption times thanks to easy foraging on the open plain coupled with a lack of predators—we did spot, high up on the volcano, mountain goats, their white coats like bright embers against the dark

gray mountainside. Ann-Elise smiled despite her obvious discomfort and, I could tell, growing frustration.

As we checked our backpacks for the day's excursion, Ann-Elise informed me that she wasn't up for a hike. "Dad, I can't," she said flatly. "I'm not going."

"Do you want to try eating something?" I asked. Sometimes she could eat shortly after her nausea to gain back her energy, if not her spirit. Ann-Elise had grown up with food allergies, so her options had always been limited. Still, we had plenty of carb-laden, wheat- and egg-free treats with us, and I suggested a couple of options. But by then her mood had turned to agitation—she was still a seventeen-year-old, after all, and I was still her annoyingly concerned father, the satellite whose orbit was suddenly too tight.

"No," she said, arms now crossed. "Just go."

"Sugarbug, we're going to be here a while and we can't head back until the convoy is ready," I said. "Please, eat something. You'll feel better." Here I was reminded of Professor Remus Lupin in J. K. Rowling's *Harry Potter and the Prisoner of Azkaban*, offering chocolate to Harry Potter as a quick fix for the malaise caused by the soul-sucking dementors. On the sunny slopes of Mount Saint Helens, however, there were no dementors, and chocolate was no remedy for this malaise. In the end, Ann-Elise held fast to her pledge to stay, a scowl on her face as I walked away with Derek, Andy, and a handful of researchers and other writers. I offered to leave her the keys so she could sit in the Forester with the air-conditioning running if necessary, a little concerned she might try the road on her own, but she refused even that.

By the time we returned, two and a half hours later, the day had warmed up and Ann-Elise had mostly cooled off, the nausea now gone but her temper still simmering. Worried that she had stayed in the parking lot the entire time, missing out on this rare chance to immerse

herself in one of the most unique (and youngest) environments of North America, I asked if she had explored a bit, trying the trails beyond the parking lot, seeing the lupine and Indian paintbrush in all their glorious bloom, watching the dust and ash blow off the top of Mount Saint Helens like the posteruption steam many presumed it to be.

"Yeah, a little," she said, a cinder of regret in her voice as she listened to our traveling companions rave about the songbirds we saw along the moss-edged rivulets that trickled down to the willows at the edge of Spirt Lake. "I saw the mountain goats again, and the lupine. But mostly I hung out with the ravens," she said, pointing to the large black birds hopping along a row of boulders at the edge of the parking area.

Mountain goats and corvids aside, I knew the missed opportunity here, not only for her to learn from the scientists who explained what we were seeing along the hike, but for us to experience the volcano together. I wanted so badly for Ann-Elise to feel as transformed by this evolving landscape as I had been, for her to discover as much about herself as she might about this traumatized place. But I knew, too, that wasn't for me to magic up. In her journey of recovery, her pursuit of renewal, only my daughter could decide what steps she would take to outpace her pain, what paths she would explore to find her true self, and what actions to take as her own antidote to despair.

"The forest has one rule," writes Alison Hawthorne Deming in response to her time at the H. J. Andrews Experimental Forest: "start over making use of what remains." Might that apply to people as well as landscapes? Are we not, after all, all starting over in one manner or another following every traumatic event, taking steps and missteps along the way, adjusting as we go? Sometimes abruptly, often slowly, we use what remains to renew and rebuild—after the fall, after the eruption, after the fire. And before whatever transformation comes next.

Coda

Less than a month after I finished my residency at the H. J. Andrews Experimental Forest, the Andrews burned again. This time, the fire—which was ignited by a lightning strike on August 5, 2023—began in the experimental forest itself, on Lookout Mountain, and was the most severe blaze the forest has experienced since it was designated for research seventy-five years ago. The Lookout Fire burned for two months, charring more than 25,700 acres, both in and east of the Andrews. Though the experimental forest's headquarters and surrounding area were spared, many old-growth sections burned heavily, including three of six log decomposition sites, among them the site Charles Goodrich and I visited over the summer. In total, two-thirds of Andrews's 15,800 acres burned.

Researchers are only now returning to the forest—where it is safe to do so—finding their plots and instruments and years if not decades of research in ashes—or not, for the fire burned hotter in some areas than others. Because the Andrews is an experimental forest, the fire's impact will now turn many researchers' focus to the forest's response and renewal. "I don't know anywhere on the planet that has had so much long-term data," said Andrews Forest lead principal investigator Matt Betts, as reported in a September 2023 *Seattle Times* article. "And now it has had a major fire, so I think it is unprecedented, some of the findings that will be coming out."

But first, the researchers must process the personal trauma of the fire. "I don't feel devastated, but I may still be in shock," Fred Swanson told me just before Thanksgiving as he paraphrased a line from a poem to express his mood: "'I always knew this day would come, but yesterday I did not know it would be today.'"

“People are processing stages of grief and trying to dial in on the grief-to-hope gradient,” he continued. “Grad students may be the hardest hit because the tree climbers have an especially close relationship with individual trees—trusting their lives to them.”

I think back on the beauty and recent history of the log decomposition site I visited only months ago, “the sanctuary,” as Charles Goodrich called it. While the instruments will need to be replaced, and the trees and shrubs and other forest beings regrow or return, there is hope not only in the regenerative nature of the forest but in the decades of data collected from the site and, indeed, across the experimental forest—data that can help guide the landscape’s renewal here and in temperate forests around the world. I think back, too, on Alison Hawthorne Deming’s wisdom: “The forest has one rule: start over making use of what remains.” What remains changes the place, and us, forever. At the H. J. Andrews Experimental Forest, the transformation has already begun. As scientists, as humans, we watch and listen and learn.