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Winter/Spring 2022

Appalachia

▲ Est. 1876

America's Longest-Running Journal of Mountaineering & Conservation

Cataclysms in the Catskills and Taconics



Floods, temperature swings, and bluebirds



Accidents · Alpina · Poetry · In Memoriam
News and Notes · Books and Media

Volume LXXIII No. 1, Magazine No. 253

Winter/Spring 2022

Appalachia

▲ Est. 1876

America's Longest-Running Journal of Mountaineering & Conservation



Appalachian Mountain Club
Boston, Massachusetts

AMC MISSION

Founded in 1876, the Appalachian Mountain Club promotes the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of America's Northeast and Mid-Atlantic regions.

We believe these resources have intrinsic worth and also provide recreational opportunities, spiritual renewal, and ecological and economic health for the region. Because successful conservation depends on active engagement with the outdoors, we encourage people to experience, learn about, and appreciate the natural world.

WELCOME

At the Appalachian Mountain Club, we believe the outdoors belongs to you, no matter who you are, where you live, or how you choose to enjoy it. And we want to help you spend more time outdoors, fall in love with those special places, and share that love with family and friends. Because with your help, and the help of good people of all ages and communities, we can protect the outdoors and ensure that everyone, now and in the future, can experience that same sense of wonder, spiritual renewal, and love. Wherever your path leads you—to a challenging summit, a quiet river, a sandy beach, or your neighborhood park—we want to be your connection to the outdoors.

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Adam Nawrot climbs the Black Chasm by the route “Mephisto’s Waltz.” This ice pillar in the Catskills, in southeastern New York State, hosts one of the steepest climbs in the Northeast. This photo won first prize in the Appalachian Mountain Club’s 2021 photo contest in the outdoor adventure category. SONIA SZCZESNA

Appalachia

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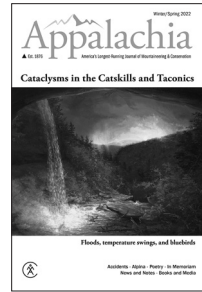
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Front cover photo: “*Kaaterskill Falls*,” by *Thomas Cole*, 1826.

WIKIMEDIA COMMONS/WADSWORTH ATHENEUM

Back cover photo: *Donkeys take a rest from carrying supplies at Crawford House, a former hotel in New Hampshire’s Crawford Notch*, in 1928. AMC LIBRARY AND ARCHIVES



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Lessons from the Chuckwalla

LAST JUNE 6, THE MORNING AFTER MY DAUGHTER'S WEDDING IN Las Vegas, five of our newly blended family gathered for a short walk. We walked through soft sand and rock formations in a state park called the Valley of Fire. We're easterners. Everything there in the Mojave Desert—heat, birds, sheep, cacti, spindly bushes—amazed us. Before we left, we wanted to see a bit more of it. It was already almost too hot to hike, so we had to keep it short. Just after 10 A.M., the air felt like a bake oven. The orange rocks glowed.

Our feet sank in the fine sand. Pushing through it reminded me of walking on a beach in New Jersey or Connecticut, and that was the only aspect of nature in Nevada that seemed familiar. I had no instincts for this land where life forms spent most of their time avoiding shriveling up. This is where tarantulas thrive, and bighorn sheep trot up steep cliffs in blistering heat.

We stepped our way along the sand tunnel, surrounded by orange rocks. Soon I paused. Something made me turn around. Twenty yards behind and off to the left, a large, fat, gray lizard with a long tail stood very still on a flat rock. It stared at something, or perhaps it was just thinking. A chuckwalla, *Sauromalus ater*. It looked so calm, so at home in this place where we were clearly not at home. The lizard was a light gray so, I later learned, a female.

She stood still like a stone. I told myself she didn't notice us. But she might actually have noticed us. She might have been very upset. This posing might have been her way of hoping we would miss her presence and go away. I wanted to move closer for a better look, but I didn't. It just seemed unfair. I was already worried about her. Lately I have felt melancholy wash over me whenever I watch a wild animal. It could be a rabbit in my yard, or a woodpecker lying dead in the road. It could be a fox running up a hill into the trees or a common loon showing its one surviving baby how to dive for fish. First I'll think how beautiful and perfect each creature looks, each so very different from the next. I'll admire the startling efficiency of a world that can create so many kinds of animals. Then I'll start worrying that someone—maybe

I—will harm it or kill it with the carelessness only humans seem to know. Or, I'll mourn what tragedy has struck it down. We humans are so very self-involved. Perhaps we can pay attention to wild creatures only by studying them, giving them genus and species names. Or by stealing, eating, or selling them. When we need animals, we pay attention. When we just let them be, that's a whole different realm.

Four years ago, the state of Nevada outlawed collecting reptiles such as that chuckwalla for either selling or keeping. This chuckwalla's mother and grandmother already had taught her not to trust humans. She didn't know Nevada had a law or that I was not one of those collecting humans. If I had gotten closer, she would have skittered into a crevice



The chuckwalla knows how to survive, and that doesn't include me. LEYO/WIKIMEDIA COMMONS

and blown up her body to wedge in there. She was not interested in me at all because my presence leads her away from thriving.

She gets most of her water from plants that miraculously grow in the glowing sand. I see that the chuckwalla understands instinctively how to survive, but that it is not easy to do so.

My daughter Annie, the bride, lives out there now. She went through a period of many years where she had to work very hard to overcome struggles. She sometimes felt she had to pretend about who she was and that she couldn't tell others what difficulties she was going through. She had to leave the place that she loved and move to an alien environment. She had found a loving wife. They were making their place, forging a life in which they know where to find the water and how to stay away from danger.

The rest of us returned to the hotel. My shoes were filled with orange sand. I poured it into a plastic bag and stared at this accidentally collected sample of an alien environment.

—Christine Woodside
Editor-in-Chief

Crazier River

The Neversink River goes rogue in the climate crisis

Hovey Brock



TOPSOIL LIES THIN ON THE ANCIENT SLOPES OF THE WESTERN CATSKILLS. As the locals say, it's two rocks to every dirt. Given that and a downpour during a sudden thaw, or a dry spell, flash floods on the Neversink River can happen at any time. My mother and I almost got washed away by one in late July 1969. We were on our way home to Claryville when the river swelled past the guardrails and came up to our car just before the bridge to Hunter Road. We lost traction and began to drift sideways, almost going into the river before our rear wheels caught something that pushed us back on the road. We were lucky. In that same spot, a flood in October 2010 swept a Willowemoc resident off the bridge as she was driving to work before daybreak. The state troopers recovered her body on the shores of the Neversink Reservoir. They found her Honda Civic "crumpled like tinfoil," as the accident report put it, on a sandbar upstream. Since 1951 when the U.S. Geological Survey began keeping records, seasonal changes in water volumes on the Neversink have been extreme, even for a Catskill river.

"Neversink" is a corruption of *nkëchëhòsi sipu*, meaning "crazy river" in the Lenapé tongue of the watershed's original inhabitants. The logging and farming practices of the European settlers did nothing to calm it down. In my lifetime, the Neversink's West Branch, where my family has been for generations, confirmed that reputation many times. In a rage, the clear waters swell to a torrent of red mud, coursing down the valley at 20 knots or more. At peak force, I can hear the rumble of boulders creeping along the riverbed.

The West Branch springs from the northwest flank of Slide Mountain, the tallest peak in the Catskills, and runs fourteen miles east to west through Frost Valley. The West Branch meets the East Branch at Junction Pool to form the Neversink proper, which washes into the Delaware River.

The West Branch has shaped my life as surely as it has worn the outcroppings of blue slate and red shale that punctuate its length. It carved out some of my earliest memories: roaring waterfalls, shivering limbs, and slippery stone at Leroy Pool, where my extended family would congregate in summer. When I was 3, I came close to drowning by falling into Leroy's upper falls. Pinned by the powerful current, I remember feeling stunned, floating on my back while blinded by the sun refracted through the rushing waters. My Aunt Barbara saved the day. A former lifeguard, she dove in and pulled me by the hair onto the rocks.

The Neversink River near its headwaters in the Slide Mountain Wilderness of New York's Catskill Forest Preserve. COMPASS POINTS MEDIA/FLICKR

No one remembers Mr. Leroy and his family, who farmed that land, grazing their cattle and sheep over a hundred years ago. Only the pool remains, part of a bequest of five square miles from Clarence M. Roof, a wealthy importer from Cooperstown, New York, to my grandmother, Jenny Franklin Connell, née Hovey, upon his death in 1923.

Before the European settlers wrested away the land from the Lenapé, virgin hemlock covered the Catskills. Witnesses to the glaciers' retreat from the Northeast 10,000 years ago, virgin hemlocks were the dominant plant of the early Holocene. Some old growth still endures on slopes that are too steep or remote for logging. As hemlocks' dense canopy keeps the understory dark and mossy, hemlock is keystone species for the Catskills. Hemlocks' riverside impact on the West Branch keeps the water several degrees cooler than that of the neighboring East Branch. At Leroy Pool, hemlocks crowd the south bank of the rocky basin. Once, when I was gazing at them from the rock cliff at the pool's edge, their blue-green needles gave me the impression I had entered a Maxfield Parrish painting. Now the woolly adelgid, an invasive species from East Asia, threatens the hemlocks' survival. The woolly adelgid is but one of many insects, stowaways of international shipping, that have no native predators in ecosystems east of the Mississippi. Others include the spotted lanternfly, the emerald ash borer, the Asian longhorned beetle, and the brown marmorated stink bug.

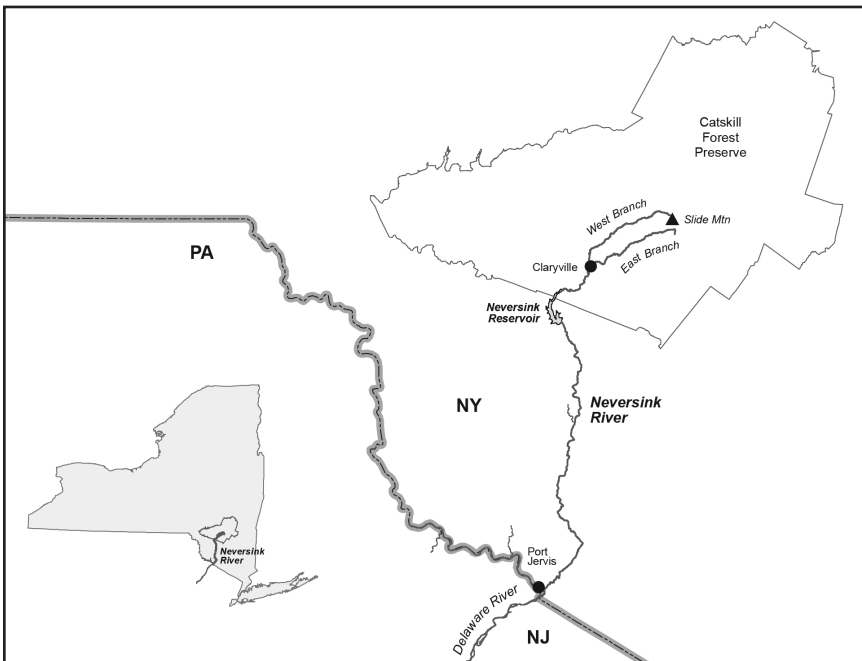
By the mid-nineteenth century European settlers had cut down most of the hemlocks to use their bark for tanning leather, a lucrative enterprise that lasted as long as the trees did. The other deforestation culprit was the so-called merino craze, which came to America after the Napoleonic Wars, when the merino breed of sheep spread from Europe. The explosion of shepherding completed the shift from forest to open pasture. Because of the forest loss, new channels and floodplains eroded what little topsoil the Frost Valley had and introduced sheep manure to the river, increasing plant and insect life. As more productive regions emerged out West after the Civil War, shepherding died out in upstate New York and New England, but the damage was done. The first-growth hemlocks were no more.

Over my grandmother's lifetime, the Catskills reforested with second-growth hardwoods—maples, cherry, ash, birch, and, on the lower reaches, oak. These did little to mitigate the loss of hemlocks, which had destabilized the West Branch and allowed the river to sweep from one side of the valley to the other, grinding boulders to rocks, and rocks to sand. For most of the twentieth century, the water cycle fell into something like a pattern: the quiet

of winter's ice, spasms of spring thaws and summer floods, the steady procession of fall rains through October and November.

And then, in the second decade of the 21st century, the pattern broke. Two back-to-back "100-year floods" tore apart the southwest Catskills. One was Hurricane Irene in 2011. The second, in September 2012, was even more damaging, a nameless local rain bomb that dumped between 9 and 10 inches within a 24-hour period. In the *Sullivan County Democrat*, Neversink town supervisor Mark McCarthy said at the time, "It was worse than Irene." Both floods swept away power lines, roads, bridges, and anything else that stood in their path. After the rain bomb, the water table was so high people in Frost Valley and nearby Claryville couldn't use their septic systems for days.

As for the West Branch, the massive water columns generated by Irene and the rain bomb had dug trenches through Frost Valley, tearing out the vegetation and leaving silt along the riverbanks. What the water columns also left behind were uprooted trees, sections of road, scrap metal, piles of rocks, and trash everywhere. These twin disasters were much more than the typical



The Neversink River begins at Slide Mountain in Catskills Mountain Park. Two branches join at Claryville before flowing south to a reservoir that serves New York City.

LARRY GARLAND/APPALACHIAN MOUNTAIN CLUB

spring, summer, and fall floods we had come to expect from one year to the next. These weather events threatened the infrastructure—electricity, roads, telephone, internet—we took for granted. I had read about dying coral reefs, the thawing of the permafrost in the Arctic, droughts and wildfires in California and Australia, and many extinctions. But climate change had come to *my* valley.

When I surveyed the 2012 rain bomb's damage to the river, my body froze like that 3-year-old paralyzed by the weight of Leroy's falls. Fear lodged in my mind like a spike, a golden spike for the Anthropocene, the dawning geologic age precipitated by the changes our species has visited on the earth's surface: air, water, and ground pollution; the disturbance of the water cycle; the destruction of animal habitat through farming and logging; mass extinctions; ocean acidification; and unprecedented concentrations of carbon dioxide, methane, refrigerants, and other gases. The extreme weather of the rain bomb had a human origin, the result of an equal and opposite reaction to industrial civilization's attempt to bend the natural world to its will. Nations, corporations, and the general population had ignored the warnings and mounting evidence since the 1960s that climate change was an existential threat, and now here I was witnessing the catastrophic repercussions from that indifference.

A golden spike is a marker in a rock layer set by the International Commission on Stratigraphy (ICS) that establishes the beginning of a geologic age—identified by the lowest boundary they've found, the smallest stratigraphic interval in the world's succession of rock layers, or strata. A golden spike marks geologic time. It ratifies stratigraphic evidence at a specific location for the beginning of a stage, which is the equivalent of a geologic age. In 1977, when I was in college in New Jersey, a bronze plaque in a rock outcropping near the Czech village of Suchomasty established the 419-million-year-old boundary between the Silurian and Devonian periods of the Paleozoic era. It was the ICS's first golden spike or Global Boundary Stratotype Section and Point (GSSP).

Since 1977, the ICS has placed 75 golden spikes all over the world. The oldest, in South Australia, goes back 635 million years to the Ediacaran Period, which preceded the Cambrian explosion of multicellular organisms. Geologists have differentiated the ages in rock layers by identifying index fossils, whose presence indicates a stratigraphic stage. Index fossils by definition have limited vertical range in the geologic record and have a wide geographic distribution. The index fossil for the golden spike near Suchomasty was *Monograptus*

uniformis, a filter-feeding marine invertebrate resembling a tube worm. Going back 372 million years, the index fossils for the upper Devonian shale deposits in the West Branch of the Neversink are conodonts, jawless fish related to the modern lamprey. Montagne Noire, located in the southwest of France's Massif Central, has the world's golden spike for that geologic age. Trout, the fish that made the Neversink famous in John Burroughs's essay "Speckled Trout," are descended from salmonids that evolved 88 million years ago and therefore newcomers compared with conodonts. After befriending Burroughs at Yama Farms, the resort in Napanoch, my grandmother let him fish her stretch of the West Branch more than once. She said he smelled like a tree.

Other ways to measure stages in stratigraphy include analysis based on changes in magnetic polarity, the composition of rocks, and radioactivity. The ICS has yet to place a golden spike for the Anthropocene in any location because stratigraphers cannot agree on when it began, or what the evidence for it would be in the geologic record. Biologist Eugene Stoermer coined the term in the 1980s, but atmospheric scientist Paul Crutzen popularized it in a paper he published in 2000. The beginning of agriculture 12,000 years ago, the rise of European colonial powers in the sixteenth century, and the dawn of the industrial age in the late eighteenth century are all candidates. The strongest contender appears to be the Manhattan Project's Trinity Test in 1945, as it marked the beginning of atmospheric thermonuclear weapons testing, which left on the earth's surface a singular footprint of plutonium, carbon-14, and other isotopes. For now, the Anthropocene lives in an ideational limbo, perhaps favored more by academics in the humanities than earth scientists. Although the ICS has not arrived at a consensus, I know when my Anthropocene started: September 18–19, 2012, when the rain bomb hit Frost Valley. The golden spike isn't located in any rock face but in my body, where I carry within the strata of my memory the trauma, which millions now share, of human-induced extreme climate events.

Just as heat-trapping gases threaten our world, catastrophic rises in carbon dioxide and other greenhouse gases, caused by massive volcanic eruptions across what is now Siberia, triggered the Permian–Triassic extinction 250 million years ago. Marking the end of the Paleozoic, it was the greatest mass extinction in the earth's history. The Great Dying, as it is known, bears a striking similarity to the present climate crisis. The acidification of the oceans, the rise in surface temperatures, oxygen deprivation—all things happening now to our air, land, and water—led to the extinction of 90 to 96 percent of all marine species, and 70 percent of all terrestrial vertebrates.

The Permian–Triassic event lasted between 100,000 and 150,000 years. What is unique, and frightening, about our time is the increase in greenhouse gases during the last 50 years—an instant by geologic standards—as more and more humans adopt the energy-intensive ways of the industrialized nations. Unless we change course, carbon dioxide levels in the atmosphere—never mind methane, which is 30 times more efficient at trapping heat—will rise well above current levels of 400 parts per million in the next 50 years. The earth hasn't seen 400+ PPM since the Miocene, 15 million years ago, when the oceans were 100 feet higher and temperatures 4 to 5 degrees Celsius warmer. Those sea levels and temperatures will render the tropics and current coastlines uninhabitable. Without drastic action, the climate crisis will cause our global civilization to crumple like so much tinfoil, and it won't be just our species in the wreckage.

Looking out my window at the feminine curves, as my grandmother put it, of the Catskill Mountains rising above the West Branch, I see a forest painted red by the light of the setting sun. How many trees will die off if carbon dioxide levels continue to soar? What will happen to the animals? Will Frost Valley become a slime-scape of death and decay, a feast for fungi and bacteria, as happened in the Great Dying? I don't think so, but there's no returning to the status quo ante. The time for mitigation was a generation ago. We are now in the danger zone of tipping points like the melting of the permafrost, which could release millions of tons of methane, or the Amazon forest, the largest terrestrial carbon sink, drying up to become grasslands. If we are to survive, we will have to commit to ever more elaborate and unpredictable interventions in the planet's land, water, and air cycles. I think about the enormity of what I am handing down to my two daughters, and I remember those long seconds when my mother and I got carried away by the flood waters.

HOVEY BROCK is an artist, educator, and writer who divides his time between Brooklyn and Claryville, New York.

Bog Parable

Entering these deep woods, late sunlight
flares on green moss again, and rises.

—*Wang Wei*

Ursus steps onto moss: buoyancy of time
recorded in layers of sphagnum, trapped water
and larch light, the early October red of cranberry.
He's heard the baying of dogs who hunt him—
(bear are born understanding the eternal)—
yet the floating world remains below. Distant,
in the forest a gunshot and the gutting of an animal
who joins eternity. Today, after many days
without a single dragonfly, a blue-eyed darter
bobs the air, whirls around Ursus's head,
and with wings of wax, flies toward the sun.

Todd Davis

TODD DAVIS is the author of six collections of poetry, most recently *Native Species* (2019) and *Winterkill* (2016), both published by Michigan State University Press. He has won the Foreword INDIES Book of the Year Bronze and Silver Awards, the Gwendolyn Brooks Poetry Prize, and the Chautauqua Editors Prize. He teaches environmental studies at Pennsylvania State University's Altoona College.

The Bluebird Chronicles

A Catskills romance

Leslie T. Sharpe

For Thomas E. Musselman

A EUROPEAN STARLING ALIGHTS ON THE CEDARWOOD NESTING BOX. IT starts to peck at the small round entrance hole as if trying to widen it. “Get away,” I scream, rushing down the steps of my front deck and across the lawn to the meadow’s edge, waving my hands at the startled starling—a notorious bully and glutton of the bird world—who retreats swiftly and, I am sure, sullenly.

This is the bluebirds’ second nest of the season, sheltered in the box that is securely affixed to the sturdy pine post. The courting male, once he has chosen his domicile, attracts the female by fluttering his wings and flying into the box with nesting material. If his lady love approves—and bluebird females, as I have seen, can be very fussy—she will fly to him and enter the box, thus solidifying their bond. I watched in early spring, at my home in the Catskills foothills of upstate New York, as Mrs. Bluebird resolutely built her first nest with strands of grass. I would discover, when I checked to ensure



A bluebird nesting box, left, stands next to blooming goldenrods in the meadow near the writer’s Catskills house.

LESLIE T. SHARPE

the box was free of wasps, bees, and other pests, that she had threaded the soft, pale grasses with pine needles, and added, as embellishments, several turkey feathers. The nest itself was neat, cup shaped, and several inches high, which would allow the nestlings, when it was time for them to fledge, easy access to the opening. The male, who cedes nest building to his mate, though diligently conducting daily inspections, sat nearby in the yellow cedar tree, serenading her with his soft, warbling *tu-a-wee* song while she worked. He was also her resolute guardian and assiduous chaperone, swooping down on any other bird that ventured near—another male bluebird, rival for her attentions, or even a wild turkey,¹ an imposing tom in full breeding regalia, his feathers iridescent in the sharp spring sunlight, strutting and fanning, oblivious of all save his own coy, modest females.

Yet as fierce as the male bluebird acted in defense of his nest, and therefore his own genetic imperative, he was unfailingly tender to his mate. He flew into the box, on those chilly early spring mornings, with a wriggling worm or some other tasty tidbit to feed her as she sat on the eggs, incubating them. If she left the nest box to hunt for herself or simply to sit in the yellow cedar tree (mothers of all species, it seems, need a break), he would enter the box and, I assumed, resume the vigil until she returned, to ensure that the eggs stayed warm. Poppa, as I soon called him, also proved to be a devoted father.

From dawn to dusk, the bluebirds worked together to feed their ravenous young, bringing them offerings of small invertebrates. (Painful to see: A pretty tiger swallowtail butterfly disappeared into the box.) They sat atop the flagpole in the front yard—an excellent vantage point from which the bluebirds can spy ants, slugs, and caterpillars lurking in the grass—then spiraled down to the ground and snatched their prey, carrying it daintily back to the nest box (though Momma had to battle to hold onto a cricket). Sometimes they would just sit there together, Momma and Poppa, and preen each other—behavior far more modest than the tree swallows' antics, the cheeky occupants of a nearby nest box, who mated acrobatically, and repeatedly, atop the flagpole.

In the twenty years I have lived on this mountain, I have experienced firsthand the changing climate and its harmful effects on birds, whose populations already suffer from habitat loss, pesticides, and the dangers of spring

¹ The wild turkey averages 43 to 45 inches in length, whereas the bluebird measures about 6 to 8 inches from bill to tail. (The meddling starling, chunkier in appearance than the bluebird, is about 8 inches.) Still, Poppa Bluebird was unintimidated and undeterred by tom turkey.



Blue-bird.
 SYLVIA SIALIS,
 Male 1. Female 2. Young 3.
 Gunt. Audubon. Vieillot. Vieillot. Vieillot.

Drawn from Nature by J. J. Audubon. F.R.S. F.L.S.

Engraved, Printed & Coloured by B. Howell, London, 1821.

For Birds of America in 1827, Audubon depicted a mother bluebird feeding a worm to her baby and a male bluebird, above. "BLUE-BIRD" BY JOHN JAMES AUDUBON/PUBLIC DOMAIN

and fall migrations. Bluebirds, especially, as early and enthusiastic first nesters, are vulnerable to the increasingly erratic weather. A January warm spell—not just a thaw, but a week of temperatures approaching 70 degrees Fahrenheit—makes me hold my breath, hoping the bluebirds, ever eager, won't arrive yet. If they do, their nest building quickly falls prey to the cold, inevitable and cruel, and the loss of food, as the insects they depend on disappear. I have opened the nest box and found the bluebird parents, who haven't even finished their nest, dead from the elements. It is heartbreaking to see such vibrant, beautiful creatures so still. Conversely, several seasons ago, after a seemingly "normal" spring of gradually rising temperatures, the last snowstorm on the mountain came in mid-May. That year's pair already had nestlings in the box, and there was no food for the little family. Every morning, I was outside at dawn, clearing snow, which kept drifting, and putting out mealworms, a favorite bluebird food. They took them gratefully—a relief to me, as bluebirds won't always accept such gifts from humans—an indication of their desperation, no doubt. Momma Bluebird would fly to the deck rail, peering in at me through the living room window, as if to say thank you. I was thrilled when I saw five bluebird fledglings flying after their beleaguered parents, later that spring. But snow, at least, for the little ones in their box, is insulating. Perhaps most dangerous to bluebirds, and other early nesters such as tree swallows, is the fact that Catskill springs have become colder and wetter, lasting longer, with chilly, penetrating rains. The nest box, though not a perfect haven, offers a home for so many species, and a way that humans, providing this habitat, can make a real difference in the life, and survival, of all sorts of birds, from wrens to chickadees to owls and songbirds such as the bluebird.

THE CATSKILLS SPRING HAS ALWAYS BEEN UNPREDICTABLE AND UNRULY, WITH winter reluctant to leave—a warm, sunny day in April, even May, could be followed by an unexpected snowstorm. So I worried over that May's killing "hard" frost, when the temperature dipped to 25 degrees Fahrenheit for three consecutive nights—and indeed, opening the box after I was sure all the nestlings had fledged in June, I found a single forlorn egg, left lifeless by the cold. Still, I was relieved not to discover a nestling, dead and desiccated, in the nest.

The previous April had been cold and rainy—even for the Catskills, though that pattern is becoming more common with climate change—and provided few insects for last year's nesting pair to feed their young. I left out dried mealworms, fat and protein rich, but that time, the bluebirds, unused to the feeder, refused to come.

I tried putting out piles of dried mealworms on a bluestone boulder that was near the nest box. Still, the bluebirds ignored my offerings. The robins, gray squirrels, and blue jays gobbled the mealworms greedily. Every day I checked to see if the bluebirds were still feeding their brood. Then, one morning, the parents just disappeared. I hoped against hope, but when I saw a turkey vulture, harbinger of death, sitting atop the nest box, I gasped. Steeling myself against that acrid stench, unmistakable, I opened the box to find seven perfectly formed bluebird nestlings, their pinfeathers tinged with blue, all dead, probably from hypothermia and starvation. I live in nature, I understand that the cycle of life and death rules everything, that birds have several nests, and many offspring, because so many are lost. But I was devastated. I left the little ones in their nest at the edge of the woods, as food for some passing critter, hoping to give their lost lives meaning. . . .

But the current season's first nest was successful. I emptied the box of the nest—once they have fledged, the young will not return—and discarded it at some distance so as not to attract a feral cat or enterprising raccoon intent on clawing their way up the post. The bluebirds will happily build a second nest on top of their first, but that new nest, higher and thus closer to the entrance hole, makes it more vulnerable to predators. Then I sanitized the box, with a dilute solution of vinegar and water, to protect against parasites such as blowflies, which can weaken and even devour young. As I worked, enjoying the warmth of a sunny June day in the Catskills, the meadows already high, fragrant with the sweet, intoxicating scent of pink milkweed flowers, I hoped that the bluebird parents would return to the cedar wood nesting box, now cleared and cleaned to their careful specifications, to raise their second brood. Summer, even in the moody, changeable Catskills, a place of soft morning mists and sudden thunderstorms, is a kinder season.

JOHN BURROUGHS, FAMED CATSKILLS TRAMPER AND CELEBRANT OF THESE hills, naturalist and nature writer, was bedazzled by bluebirds. In his poem "The Bluebird,"² Burroughs celebrates the bluebird's "azure coat and ruddy vest" as "hues that April loveth best."

And thy blue wing's a joyous sight,
Among the brown and leafless trees.

² John Burroughs, "The Bluebird," first published in *Harper's Magazine*, June 1903.

“Azure,” the color of the summer sky, is the adjective Burroughs favors when describing the blue of the male eastern bluebird.³ (The female lacks the bright iridescence of her mate. She is grayish-buff above with light blue tinges in her tail and wings, and her breast is a subdued orange wash.) The winter sky is sharp, a cut-crystal sapphire. The spring sky is soft, washed, as pale as a robin’s egg. The high summer sky, with its dome of deep infinite blue, is the fulfillment of the bluebird’s promise when that first thrilling azure flash defies winter’s bleakness, a reprimand of its recalcitrance, which turns our hearts toward hope.

All of our clichés—the “bluebird of happiness,” the bluebird as symbol of good fortune and friendship, love, joy, and even fertility, which make it an enduring motif of American folk art (from pottery and painting to Pennsylvania Dutch hex signs) as well as a favorite subject of poetry and popular songs (the iconic “Somewhere over the rainbow bluebirds fly”), and even a beloved, if corny, caricature of Disney cartoons (cheery bluebirds as Cinderella’s bridal couturiers and Snow White’s woodland escorts)—become new again in spring at the sight of the bluebird, one of our earliest returning migrants. In his essay “The Bluebird,” Burroughs wrote,

When nature made the bluebird she wished to propitiate both the sky and the earth, so she gave him the color of the one on his back and the other on his breast, and ordained that his appearance in spring should denote that the strife and war between the two elements was at an end.⁴

The bluebird’s plumage, summer sky blue, his belly as white as a cumulus cloud, his “ruddy vest” the color of rich Catskills clay—this small songbird, a passerine of the genus *Sialia* of the thrush family, personifies in his being nature itself.

THE STARLING APPEARS ONLY ONCE IN SHAKESPEARE.⁵ UNFORTUNATELY, THAT brief reference was not lost on Eugene Schieffelin. Schieffelin, a wealthy New Yorker and Shakespeare devotee, was determined to bring all the birds the

³ That is, “their [the bluebirds’] twinkling azure wings,” John Burroughs, “The Bluebird,” Chapter 7, *Wake-Robin*, first published by Hurd & Houghton, New York, 1871.

⁴ John Burroughs, “The Bluebird,” Chapter 7, *Wake-Robin*.

⁵ *Henry IV, Part 1*, 1.3.224: “Nay, I’ll have a starling shall be taught to speak nothing but Mortimer, and give it to him to keep his anger still in motion.”

bard mentioned to America. Of these,⁶ only European starlings, brash and bossy, survived, establishing themselves as resident aliens. Fifty years after 80 starlings were released in Central Park in 1880,⁷ they had colonized cities, suburbs, and even rural areas across North America. Their success was a cautionary tale, still being told with increasing urgency today. Invasive—that is, non-native—species, flora and fauna, often have no natural enemies in their new environs and, like the starlings, are highly adaptable and opportunistic. Native species, especially plants, are prone to being usurped by these invaders, which provide fewer quality food sources for pollinators, notably honeybees, and birds. Exotic invasive species, invariably introduced by human activity, pose a singular threat to our natural ecosystems—and farmlands.

In 1939, Rachel Carson praised the European starling for “his successful pioneering and his service in insect destruction.”⁸ Clearly, by then, the “pioneers” had not yet morphed into marauders, flying in flocks in the hundreds, to pillage crops and raid feed stores. But in the 1930s, noted ornithologist Frank Chapman warned that the starling already posed a serious threat to other cavity nesters, in particular, the eastern bluebird.⁹ The aggressive starlings readily roused the smaller bluebirds from their territory, which was beginning to be compromised by habitat loss due to development and the increasing use of pesticides. The starlings seized the bluebirds’ nesting sites—natural tree cavities and old woodpecker holes, even openings in wooden fence posts. Dr. Lawrence Zeleny, founder of the North American Bluebird Society, wrote in a 1977 article, “During the past 40 years, the population of the eastern bluebird may have plummeted by as much as 90 percent.” Extinction, Zeleny concluded, was “a real possibility.”¹⁰

⁶ Chaffinches, song thrushes, nightingales, and skylarks. Steven B. Garber, *The Urban Naturalist* (New York, John Wiley & Sons, 1987), 144.

⁷ Garber, *Urban Naturalist*, p. 144.

⁸ Rachel L. Carson, “How about Citizen Papers for the Starling?” *Nature Magazine* (June–July 1939): 317–319.

⁹ Jim McCormac, “Eastern Bluebirds Still Brighten Meadows, Thanks to Nest Boxes,” *The Columbus Dispatch*, “Nature,” February 19, 2016.

¹⁰ Lawrence Zeleny, “Song of Hope for the Bluebird,” *National Geographic Magazine*, June 1977. The response to Zeleny’s article (and his 1976 book, *The Bluebird: How You Can Help Its Fight for Survival*, published by Indiana University Press) was so overwhelming—the concerned public became galvanized in its support of the bluebird—that he founded the North American Bluebird Society the next year, in 1978, which began his decades-long campaign to save the eastern bluebird.

Dr. Thomas E. Musselman, a “gentle godfather to millions of bluebirds,” invented the bluebird box that “brought the bluebirds back.”¹¹ An accomplished naturalist, a member of the first class in ecology ever taught at the University of Illinois, Musselman observed as early as 1926 that bluebird populations were falling precipitously in Adams County, Illinois, because starlings—



Leslie T. Sharpe with one of the six nesting boxes she watches with a passion. COURTESY OF LESLIE T. SHARPE

and those other invasives, house sparrows—usurped nesting cavities. Nest boxes made of varying materials—wood, clay, even tree branches—had long been in use to attract insectivores, especially the bluebirds, prized for their beauty and sweet, melodic song, as well as their insect-catching skills. What Musselman did was tailor the box specifically to the bluebird “with attention to the entrance hole, ventilation, drainage, floor dimension, cavity depth, all relating to bluebird territorial imperatives.”¹² In 1934, Musselman erected his first “bluebird trail,” a series of 25 boxes set 100 yards or so apart and subject to regular monitoring and maintenance, to keep the nests clean, dry, and free of parasites and predators.

In the intervening years, Musselman’s original design has been modified and improved.¹³ But his basic principles of bluebird box—and especially bluebird trail—construction are still relevant. My own modest bluebird trail of six

¹¹ *Sialia* (*The Quarterly Journal of the North American Bluebird Society*), 1, no. 3 (Summer, 1979): 99.

¹² *Sialia*, p. 100.

¹³ Today’s two basic types of nest boxes are considered to be the standard or Duncan box, perfected by William Duncan, who distributed hundreds of these in Kentucky (*Sialis*, “Eastern Bluebird History,” sialis.org), and the Peterson box. Both have these critical features: “1. Properly sized and placed entrance hole; 2. Adequate ventilation; 3. Adequate drainage; 4. No pressure-treated lumber; 5. No dark-colored paints or stains; 6. A minimum front roof overhang of 5 inches; and 7. No external perch placed on the front of the box.” (*Ecology Technical Bulletin*, no. 1, “Nest Boxes for Cavity Nesting Birds,” can be found at <https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/NestBox.pdf>)

nest boxes stands along the edge of sunny meadows near an expanse of mown grass, which offers these insectivores ample food to feed their nestlings. Cedar wood, rot and insect resistant, which weathers to gray, providing a sort of natural camouflage, makes a durable nest box material. Each box features a slanted roof to shed rain and offer shade, an overhang to deter predators, a ventilation slot directly below the roof, and several small drainage holes, which I drilled in the floor of each, to rid the nest of excess moisture. Perhaps most crucial is the round entrance hole (with no perch, to deter house sparrows), which must be no more than 1½ inches in diameter, to prevent those pesky starlings from entering.

What Musselman, “the father of modern bluebird conservation techniques,”¹⁴ did was inspire a conservation movement, one of the most successful ever. Boy Scouts, backyard birders, Auduboners, and many dedicated “citizen scientists” banded together to save the eastern bluebird. In 1964, Ralph K. Bell, a poultry farmer in rural Pennsylvania, started a bluebird trail of about 200 boxes on utility poles along his egg delivery route. As many as 800 bluebirds fledged every year.¹⁵ In 1999, thanks to such grassroots efforts (which continue) the eastern bluebird was removed from New York State’s Endangered, Threatened and Special Concern List.¹⁶ The bluebird’s current conservation status—remarkable really, considering its recent history—is “Least Concern (population increasing).”¹⁷

Still, “bluebirders” remain vigilant, and have been known to snap the neck of house sparrows—another aggressive, non-native species, imported from England to New York City in the nineteenth century to control insects—that seize nesting boxes, often pecking bluebird nestlings, and their parents, to death. There *are* successful so-called passive ways of dealing with these invasive birds. One is simply not to put up boxes near dwellings inhabited by humans, which attract the aptly named house sparrows. Musselman observed, “I found little competition from English [house] sparrows, except where the boxes were placed close to a farmhouse or barn.”¹⁸ Another strategy is simply to remove the house sparrows’ nest, which may take several efforts, as male house sparrows are dogged and determined home builders. And of course,

¹⁴ *Sialia*, p. 99.

¹⁵ *Sialis*, “Eastern Bluebird History,” sialis.org.

¹⁶ New York State Press Release, May 11, 1999.

¹⁷ International Union for Conservation of Nature (IUCN), Red List, iucnredlist.org.

¹⁸ *Sialia*, p. 104.

increasingly, one can affix gizmos to a box that supposedly deter house sparrows while not discouraging bluebirds from nesting.

Aside from the ethics of favoring one species, such as the bluebird, native to North America, over a more common, introduced one—and the larger question of how much we should interfere in nature, even to right our own past interferences—the killing of the house sparrow, that cheerful, if homicidal denizen of city streets, appalled me. How I wondered, before I erected my own bluebird trail, before the bluebirds tenanted one of my own nesting boxes, could the bluebirds excite such passions?

THE SUMMER CATSKILLS ARE A PLACE OF COOL GRAYS—OF MORNING MISTS and evening clouds, and afternoon thunderstorms rolling across the mountains, and the ever-shifting wind bringing relief. But during that July's heat wave, even the wind blew hot, a mountain sirocco. Extreme heat, like extreme cold, can be lethal for birds, especially for new hatchlings who can't yet regulate their body temperature.

In the pitiless heat, I would find four eastern phoebe nestlings lying on the ground—one was already dead, the others, eyes closed, their bodies bloated, their tiny bills gaping for food. I guessed that their mother, whose nest beneath my back deck was unusually high (the phoebes, small grayish flycatchers with an incessant but endearing cry of *phoe-bee, phoe-bee*, nest there every year), had toppled it, on her flight in and out to feed her young. Then again red squirrels could have felled it or chipmunks, hunting for eggs, though both will take nestlings too.

If I had discovered the phoebes sooner, before the sun had blistered them, perhaps I could have replaced them in the remnants of their nest. But now, the only possible intervention—and kindness—was to kill them, but I couldn't bring myself to do it. "You can't let them suffer," said Jeremy, my friend and handyman, who every year carefully covers the corner of the deck that shelters the phoebe nest underneath when he power-washes it. He took the sorry little family gently from me. "It'll be quick," he reassured me. That night, lying in bed, I would think how sad it was that the phoebes had never known rain. . . .

Extreme heat can also be deadly for eggs, frying them in a wood nesting box, where it can be 10 degrees hotter than outside. As the temperature soared into the 90s and I saw Momma Bluebird sitting atop the flagpole, panting, I was stricken with fear for her and her babies-to-be. The tableau of the fallen little phoebes had affected me deeply. I hadn't been able to help them. Nor had I been able to save a young barn swallow its siblings had pushed out of

the nest onto a metal rafter right under the roof of my carport. Its parents had constructed a nest that was too small—a messy cup of mud, grass, and errant feathers. I had guarded the fallen nestling through much of that day, picking it up and moving it into the shade when it kept straying into the sunshine. Its parents were frantic, trying to feed their offspring, and I soon realized I was only agitating them more with “help.” I finally left the little “barney,” not yet old enough to fly, looking dazed, sitting on the inverted lid of a trash can, off the ground, safe, I hoped, from predators. In the morning, though, it was gone, and the parents were busy with their remaining brood.

Nature is not sentimental. Animals in the wild have one mandate, to propagate their species, which is why birds have so many young (the bluebird lays four to seven eggs). Many of them have more than one brood. The bluebird’s average life span in the wild is one to two years. Its many predators include the red-tailed hawk that the vigilante crows routinely roust from the stately shagbark hickory tree on my property. Bluebirds’ (and all birds’) spring and fall migrations are fraught with danger from storms, predators, and (for those who fly at night) the possibility of slamming into buildings. The bluebird, a shy bird without benefit of the tree swallow’s swooping speed or the aggressiveness of the starling and house sparrow, is at a decided disadvantage, especially against its avian competitors. Critters die, routinely, which is the reason for my own first naturalist’s rule, which I had now broken, yet again: never fall in love with wild animals, and never name them, as I had named the bluebirds, Momma and Poppa.

A quick web search revealed that to protect nesting bluebirds from heat, I should “attach a small umbrella to the box.” Having neither a small umbrella nor any possible way to attach it, I instead dug out a garish beach umbrella decorated with fluorescent Day-Glo flowers I had buried in my basement and erected it in the pristine meadow at an angle to deflect the high sun from the box. As I tried to secure it to the 4-by-4-inch pine post, Poppa, alarmed, fluttered about my head. He seemed unconvinced I was trying to help. Then I bumped into the box, chasing Momma from her nest. The two of them flew off, and I panicked that I might have driven them away.

To my relief, the parents soon returned and though wary, braved the umbrella, refusing to sacrifice their family to this meddling madwoman. But by the next morning, the hot mountain wind had blown the umbrella over—it was blocking the box’s entrance and Momma, frantic, was unable to get in. I quickly took down the umbrella as the parents eyed me from their perch in the cedar tree. The temperature was already in the 90s and although the box

faced east with its opening away from the afternoon sun, there was no shade at all. So I salvaged a wide-brimmed straw hat worthy of Monet at Giverny from my closet and fixed it to the top of the box, giving it the appearance of a stylish, if demure, scarecrow. Again I waited as the birds overcame their initial hesitation. Poppa landed on the hat as if to vanquish it, as I had seen him land on a chipping sparrow fledgling that had strayed too close to the box, driving the bewildered youngster away. I also decided to wet down the box several times a day, setting the hose nozzle to a fine mist which the bluebirds would fly through happily. Clearly, we were in this together.

The weather broke after a week, and soon I finally saw what I had been hoping for—Poppa, not just Momma, entering the box, both bearing insects, food for their hatchlings who had survived the relentless heat. But several days later, my elation was tempered by concern. Where was Poppa Bluebird? Only Momma was feeding their young, flying busily in and out of the box. I watched for him with increasing desperation that day and into the next. But Poppa never appeared, and I knew that he, the ever-faithful, vigilant father, must be dead. Then, still hoping, as I scanned the meadow for some sign of Poppa, the mourning doves and young eastern cottontails, still fairly guileless, silly rabbits indeed, which were lounging openly out on the lawn, suddenly scattered as a large bird passed overhead, casting a dark shadow that moved ominously over the grass. . . .

I heard it first—*kreee, kreee, kreee*—the caustic cry of a red-tailed hawk. Then I saw the hawk, its red tail visible even at a distance, flying high over the meadow, being chased by crows, sleek and shiny in the sun, who had recognized a predator more dangerous than they. Instinctively, without even a thought, I reached for my air rifle, very accurate, which I normally use for target practice, a very Zen activity, when nesting season is over, and loaded it. The rifle uses pellets, but it can kill birds and small game. I had never shot at any living thing, let alone something as majestic as a red-tail, but I would *not* let the bluebird nestlings be orphaned. I would *not* let Momma be taken too. Then I left the air rifle out on the front deck, leaning up against the house, and depended on the crows to alert me.

The next morning I awoke to a cacophony of cawing. From my living room window I spied a black cloud of crows circling a dying oak tree at the far edge of the meadow. Through binoculars, I saw a sight that made me gasp—*two* red-tailed hawks sitting on a bare branch, ignoring the raucous crows, who were intent on “mobbing” them, a behavior that birds use to drive predators out of their territory, especially in nesting season. Suddenly,

I felt a surge of rage—a rage spiked with protectiveness and even a desire for revenge. What had happened, I would wonder, to the naturalist who had so coolly chronicled the bluebirds' first nest of the season—from their arrival in early April to the day their last hatchling fledged in June—who understood more than most that nature is morally neutral, indifferent even, that it holds no grudges, or even any special likes, that it seeks only to survive?

I snatched my air rifle from where it stood sentry on the front porch, got into my old green Subaru, which was almost camouflaged in brown mountain mud, and, brakes off, rolled down the dirt road to the tree where the red-tails were still sitting, though the ever-cautious crows quickly dispersed at my approach. The irony of the rough-hewn wooden sign I had affixed to my front gate was not lost on me as I passed it. "Lazy Hawk Mountain," it read, in tribute to a young red-tail of several summers ago that seemed to prefer riding the thermals of a hot sunny day to honing its hunting skills. I admired birds of prey—such skillful flyers, those sublime assassins of the sky—and appreciated their place in nature. Could I really kill one species—one beautiful and necessary, if deadly species—to save another?

The hawks were high up in the tree, but this was a high-powered air rifle and I am a good shot. For a moment I just sat there breathing. Then I got out, closed the car door quietly. But before I could even raise the rifle to my shoulder—to my relief—the red-tails flapped off down the mountain. They had recognized the *real* predator, the human one, *me*. . . .

I NEVER SHOT AT THE RED-TAILED HAWKS, I DIDN'T HAVE TO. (WOULD I HAVE? Could I have? Doubtful. But still. . . .)

My fellow bluebirders were sympathetic when I told them my tale. "Without the bluebirds," one said, nodding in understanding, "there would be no spring." But another friend scolded me for "even considering shooting red-tails," her "totem animal," she called them, while dismissing the slaying of "nuisance" house sparrows as "necessary," leaving me to contemplate how relative the value is we place on life—human as well as avian.

The crows, who gleefully steal eggs and hatchlings—I once saw a crow flying with a nest in its bill being pursued by irate red-winged blackbirds—kept the hawks at bay. I knew that the bluebirds, once they fledged, until they were adults, would be vulnerable to the crows as well as the red-tails. But in protecting their own territory, the crows, for now at least, in nature's irony and symmetry, were protecting the bluebirds too. Still, I monitored the nesting box anxiously, with the name and telephone number of a local

songbird rehabilitator (trained to foster baby birds even this young) at the ready. I still feared for Momma Bluebird. Even if she escaped the hawks, I knew how difficult it was for a single bluebird parent to successfully fledge a brood of hatchlings on her—or his—own. And I was also concerned that any weaker nestlings might be neglected or even abandoned by Momma, who had worked so tirelessly without her mate.

Then, one morning, nearly three weeks later, a grayish bluebird fledgling, with dark spots on its back and breast, so drab compared with its brilliant parents—especially, of course, Poppa—landed clumsily on my deck rail. I watched, enthralled, as Momma cajoled its siblings into leaving the nesting box—flying to the box, peeking in, flying away again, encouraging them to follow her. She wasn't feeding them, I also noticed—a powerful incentive for a hungry young bird to brave that first flight. Then the remaining nestlings started to zoom out, one by one, as if they were on a runway. To my delight, the new fledglings *all* landed on the railing of the deck, where they sat, wobbly, looking around, stunned and somewhat disheveled, until their mother joined them. If it's possible for a bird to look pale and worn, she sure did.

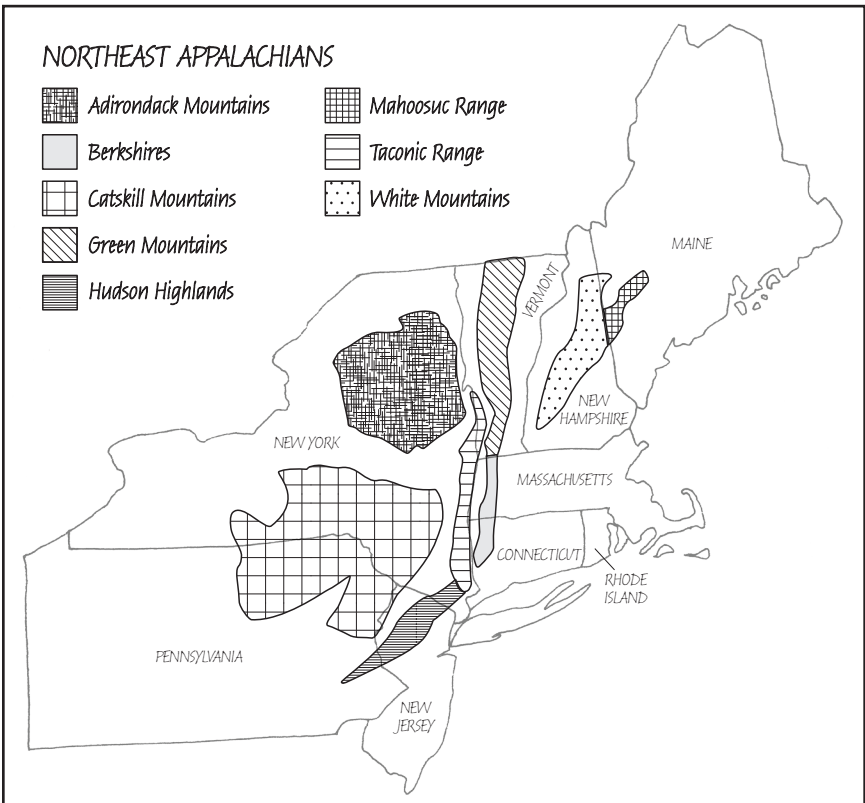
When Momma arrived, she cocked her head at her fuzzy little fledglings as if counting them—I, 2, 3, 4. Then, satisfied they were all there, she flew off, leading her bright new bluebirds into the nearby woods, where she would feed them until they were old enough, and strong enough, to fend for themselves. Poppa would have been proud.

LESLIE T. SHARPE is the author of *The Quarry Fox: And Other Critters of the Wild Catskills* (Abrams, 2017), a narrative study of her home landscape, the Great Western Catskills, and the many critters that inhabit it. The Catskill Center for Conservation and Development named Leslie as one of Fifty Stewards of the Catskills in 2019. The audiobook of *The Quarry Fox*, narrated by the author, was released by Silver Hollow Audiobooks in 2020. She has taught writing and editing at Columbia University, New York University, and the City College of New York. She is a former vice president of the New York City Audubon Society.

The Taconic Controversy

What forces make a range?

John Seward



THE SNOW FALLING INTERMITTENTLY THROUGHOUT THE AFTERNOON grew steadier as night began to fall. On the last day of 1974, a friend and I spent several hours wearing wooden cross-country skis while ascending part of the Taconic Mountains to Berry Pond. At about 2,000 feet, this pond is doubtless the highest body of water in Massachusetts's Pittsfield State Forest.

Near the pond's edge, we arranged a tripod from dead branches and hung a small tarp as a pyramid from its apex. The previous night's camp at the foot of the mountain was under a clear sky and a big moon. But it had been miserably cold and full of suffering as a sharp breeze infiltrated the tarp's lower edges. This time, we carefully banked snow to seal our shelter, closing off its entryway with a poncho lashed to the tripod.

The festive yet unappetizing meal was of brown rice and canned reindeer meatballs (culled from an import store) washed down with a modest amount of rum. We retired before midnight to comfortable sleeping. In the morning, we raced through the newly fallen snow along Lulu Brook and down toward Pittsfield.

The Taconic Range runs for nearly 100 miles along the western border of New England. My personal, episodic engagement with these mountains had long ago taken on the character of a nostalgic and private mythology. In this, U.S. Geological Survey maps have been my Gilgamesh, my Bhagavad Gita. But I only recently learned the Taconic Mountains are at the center of a classic debate in American geology. That is, did the mountains form their own range or were they part of another?

In certain details, it turns out this scientific Taconic history veers closer to the operatic than toward science and might easily be chalked up to additional Taconic mythologies.

In this account, however, I stick narrowly to facts: Among these mountains, beginning in the 1840s, scientists held a series of key debates over conflicting notions of the earth's structure, according to Paul Karabinos, a geologist at Williams College who studies the origins of the Taconic Range. Especially in the nineteenth century, these debates had "given rise to a controversy unequalled in the annals of American geology," wrote George P. Merrill, a curator at what was then called the United States National Museum, in 1906.

Today the Taconics' origin is explained through the theory of plate tectonics. Plate tectonics emerged in the 1960s from seismic data gathered from monitoring nuclear explosions and from paleomagnetic surveys of ocean

The northern Appalachian Mountains include several distinct ranges that are geologically different. ABIGAIL COYLE/APPALACHIAN MOUNTAIN CLUB

beds. The range probably formed about 470 million years ago, when primordial volcanic islands at the edge of a plate smashed into proto-North America. (Earth is about 4.54 billion years old.)

The Taconics are often imprecisely lumped with the Berkshires and Green Mountains, both of which lie a few miles to the east. Landmarks include the highest point in Massachusetts, Mount Greylock (3,491 feet), with its war memorial and the rustic Bascom Lodge built in the 1930s by the Works Progress Administration. Henry David Thoreau visited the summit in 1844. Herman Melville dedicated his novel *Pierre* “To Greylock’s Most Excellent Majesty,” and Nathaniel Hawthorne wrote memorably of its nighttime slopes in his tale of sin called “Ethan Brand.”

Greylock was a lodestar of the Alpine Club of Williamstown, a briefly active precursor of the 1876 Appalachian Mountain Club. The Appalachian Trail traverses Greylock, while nearby the 37-mile Taconic Crest Trail runs along the New York border ending near North Pownal in Vermont. Beyond this, the Taconics culminate in the 3,852-foot Equinox Mountain towering over Manchester, Vermont.

Toward the southern end of this range and easily seen from Greylock’s summit, Mount Everett (2,625 feet) and Bear Mountain in Connecticut (2,323 feet) sit on the edge of a dramatic escarpment above the Housatonic Valley. This peak dominates the 60-square-mile massif centered on the southwestern corner of Massachusetts, an area mapmakers sometimes label the South Taconics. At least until the twentieth century, Mount Everett was widely and affectionately known as “The Dome,” or “Dome of the Taconics.” But today it’s called the more prosaic name Massachusetts state geologist Edward Hitchcock officially bestowed in 1839 for then-governor Edward Everett.

Franklin D. Roosevelt hoped that a park could be built during work to build a parkway through the Taconics. Robert Caro wrote in his 1974 book *The Power Broker: Robert Moses and the Fall of New York* (Knopf) that Roosevelt “was particularly enthusiastic about a plan to have New York State build a tri-state park, in cooperation with Massachusetts and Connecticut at the juncture of those three states.” This would have been a vast, tri-state park. At the time, FDR had just begun four years as chairman of the newly formed Taconic State Park Commission of New York.

The interstate park project died when Roosevelt resigned over a dispute with parks official Robert Moses, who insistently blocked Roosevelt’s plan to obtain a patronage job on the commission for his political aide, Louis Howe. Moses completed the Taconic State Parkway, the road, in 1954.



Bear Mountain at the southern end of the Taconics rises above the Housatonic Valley.

CHRISTINE WOODSIDE

Because of the failure of the tri-state park, the mostly wild South Taconics are today a hodgepodge of state and private lands, including more than 4,000 acres owned since 1922 by the private Mount Riga Incorporated. This area is traversed by the Appalachian Trail and home to Northwest Camp, a cabin built in 1951 by the AMC Connecticut Chapter.¹

¹ For more about AMC's Northwest Camp, which people can rent on certain weekends, see <https://www.outdoors.org/community/volunteer-led-camps-and-cabins/connecticut-and-new-york/northwest-camp/>.

At separate times during the long years of the Taconic controversy, both Hitchcock and his son, the geologist Charles H. Hitchcock, weighed in on some of its skirmishes. But Charles Hitchcock is best remembered for establishing a year-round scientific summit station on Mount Washington in 1870, which operated continuously for 22 years. (The current observatory opened in 1932.) He was head of the New Hampshire Geological Survey and also a founding member of the Appalachian Mountain Club, serving as its councilor of topography and explorations.

THE CONTEMPORARY U.S. GEOLOGICAL SURVEY IDENTIFIES MOUNT EVERETT as part of the Taconic Allochthon. An allochthon is a structure or mass of rock that has arrived from its original site and is shoved into place by low-angle thrusting,² Mount Everett is mostly metagraywacke, a metamorphosed sandstone with “a distinctive pin-striped appearance.” The entire region also includes beds of Stockbridge marble, part of a ridge of marble running from Connecticut to Vermont and associated with small limestone caverns. The caverns are beautiful bat havens scattered throughout the Taconics.

The scientific debate on the Taconic Range during its first half-century centered on competing theories of the age of the rocks and their related regional systems. The second phase, settled in the 1960s after many decades, concerned whether the rocks had formed in their current location as an “autochthon” or were thrust into place from elsewhere as a discrete allochthon. By the 1980s, science turned to tectonic theory to explain the allochthon’s origin.

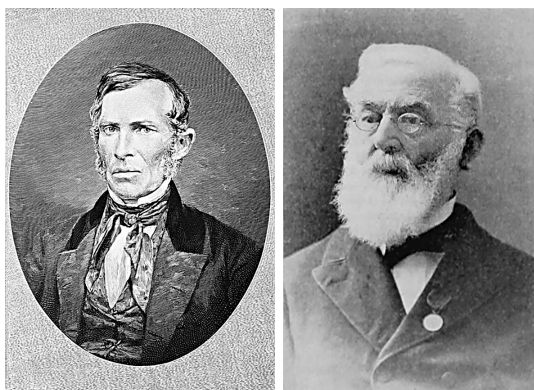
“For a long time, the Taconic Mountains were a geological puzzle,” according to Chet and Maureen Raymo’s comprehensive summary of New England geology, *Written in Stone* (second edition, 2001, Black Dome Press). “The rocks in those ridges did not seem consistent with their surroundings.”

Heated conflict flared from this matter during much of the nineteenth century, highlighted by an 1851 libel trial that pitted two geologists against one another: the irascible James Hall (1811–1898), backed by a big slice of the nation’s scientific establishment, against the well-regarded Ebenezer Emmons (1799–1863). Emmons was forced to resign from his long career in the region because of the perceived disgrace of his trial testimony.

That marked the end of a long relationship that had begun in 1832, when Emmons lent \$4,000 to his young student Hall for tuition and other

² Low-angle thrusting is a fault in the earth in which one mass of rock pushes over another at a gentle incline.

expenses at what is now Rensselaer Polytechnic Institute in Troy, New York. Hall never repaid that loan, according to his 1921 biographer, former assistant and successor as New York State paleontologist, John M. Clarke. Whatever the nature of Hall's and Emmons's early relationship, "they were two very unlike qualities," writes Clarke. "Emmons was nervous and sensitive, Hall determined and headstrong."



Ebenezer Emmons (at left) first proposed the Taconic System as a separate range. His former student James Hall vehemently disagreed. WIKIMEDIA COMMONS

In 1837 the two geologists together made the first recorded ascent of New York's highest point, Mount Marcy, during a state-sponsored expedition. As chief of the New York Geological Survey's Adirondack region, Emmons led the eight-member 1837 expedition and named the peak after his boss, Governor William Learned Marcy.

Emmons had been an obstetrician for 15 years before turning to geology, teaching at both Williams College and Rensselaer. A pious New England Calvinist from the Berkshire hill country, Emmons was also described as "of a cheerful and playful disposition," according his intellectual protégé in later life, Jules Marcou (1824–1898).

Even before the Marcy expedition, Hall had embarked on a long and much-acclaimed career as paleontologist and geologist. But Hall became "legendary for paranoiac outbursts," according to Robert H. Dott, in a 2005 biographical essay for the National Academy of Sciences.

"Hall's assistants learned more from him than just paleontology, for they also experienced a strong, egotistical, and irascible personality," Dott wrote. "Besides throwing vituperative verbal daggers, he sometimes brandished menacingly either a stout cane or even a shotgun kept at the ready near his desk."

Emmons frequently traversed the Taconics in the 40-mile trek between colleges in Williamstown and Troy. In 1841, he proposed the existence of a system of strata there not previously identified—"to be called the Taconic

System—separate from any component of what he and his survey colleagues had recently established as the New York System. Emmons soon bolstered this theory with key fossil discoveries on Bald Mountain, in New York near the Battenkill River.

But almost immediately, the state geologist for the zone that included the Taconics, William W. Mather (lineal descendant of the colonial Rev. Cotton Mather), rejected Emmons's Taconic System. Hall supported Mather and maintained the rocks were simply part of the New York System.

“From this seemingly minor disagreement arose the controversy which lasted for the remainder of the century, and affected the lives and careers of every prominent geologist in the United States,” according to a 1978 study titled “The Great Taconic Controversy” (Cecil J. Schneer, *Isis*, 69, no. 2: 173–191).

Things irretrievably blew up a few years later, when Hall encountered a newly published regional geology chart in an Albany office, where it awaited state approval for use in schoolroom instruction. Hall politely asked to borrow the chart and, according to his 1920s biographer Clarke, then “burst out in a torrent of denunciation and invective over the impudent document and made his way out of the office with the chart tucked under his arm.”

A schoolmaster named James T. Foster, from nearby Greenbush, New York, had produced the chart. Foster was not a geologist and, apart from admirable aesthetics, his chart's classroom value according to mid-nineteenth century standards is hard to measure. Significantly, Hall had already nurtured the idea of producing such a chart himself, for sale to public schools.

Hall marshaled support for his protest from the then-eminent Harvard scientist Louis Agassiz (1807–1873). Albany newspapers printed unpleasant letters in which Agassiz called Foster's chart “a monstrous map full of false and antiquated views,” and “a disgrace to American geologists if they were not to protest against it!” Foster filed libel lawsuits against Agassiz and Hall, suing them for \$20,000 and \$40,000, respectively.

Press attention focused on the role of Swiss American Agassiz, “a national possession, known and honored by all of intellectual America,” Clarke gushed in his tome. Although still recognized today for breakthroughs in glaciology and ice age theory, Agassiz's reputation is marred by his extensive writings on white supremacy.

But meanwhile, Foster shipped the first edition of his chart on an overnight boat to Manhattan from Albany for distribution to schools. Hearing of this, Hall booked himself on the same boat, and the charts never arrived.

“The only logical deduction is that Hall threw the entire edition into the Hudson River,” Clarke writes.

Preparing for the Agassiz libel trial, the hapless Foster tried to bolster his case by obtaining advice on geology from Emmons. The term *Taconic System* was then inserted into the chart, along with the line “Corrected by Professor Emmons and W. W. Mather, New York State Geologists.” Mather immediately disclaimed any involvement.

The 1851 Albany jury trial degenerated from Agassiz’s defense against Foster’s libel charges “to an open assault upon Emmons” and his Taconic System, according to Clarke. Emmons withered on the witness stand under questioning from lawyers carefully coached by Hall.

Foster lost his libel case against Agassiz and then dropped charges against Hall, who proceeded to produce and sell a chart of his own. Emmons, disgraced among colleagues, soon left New York to become state geologist of North Carolina, where he spent the last years of life extending his theories to southern mountains.

Parenthetically, Emmons endorsed abolition until his peaceful death in North Carolina during the Civil War; Hall, a so-called copperhead, rooted for the Confederacy to its end from his Albany perch.

Enemies made during the trial “were enemies for life, and echoes of the trial did not ebb away with the life of its participants,” Clarke writes. Marcou helped nurse the grudge. Over a long career as a prominent geologist, Marcou, like Agassiz a Swiss American, stirred the pot and marshaled important allies with his barbed science monographs and squabbles in favor of Emmons’s Taconic System. As late as 1892, Marcou accused Hall of slowing the progress of American geology, and he thought Emmons had been treated unfairly over his Taconic System theory.

Historically parallel with the Taconic Controversy, British geologists were split for 40 years over the “Murchison–Sedgwick Controversy.” This comparatively sedate dispute over the Silurian System versus the Cambrian System in the borderland area of Wales was settled by a peaceful compromise in 1879.

By the time Hall and Marcou died, both in 1898, the very concept of the Taconic System had become increasingly subsumed by refinements. William H. Hobbs, later a renowned twentieth-century authority on Greenland, did extensive fieldwork on the South Taconic massif for two seasons at ages 25 and 26. “Each of the numerous peaks was ascended,” Hobbs wrote in his 1893 USGS report on the area. The now largely forgotten work is notable for its terse disavowal: “No mention will be made of the Taconic Controversy.”

Emmons and Hall are now both entombed amid the elegant Victorian monuments of Albany Rural Cemetery, seen as a backdrop in the gloomy 1988 film called *Ironweed*. Other denizens of this burying ground include the obscure U.S. President Chester A. Arthur, 34 members of Congress, 8 presidential cabinet members, 5 New York State governors, and a large assortment of Albany mayors.

In a 21st-century view, Emmons and Hall “were both partly right and partly wrong,” wrote the late Donald W. Fisher in his 2006 book *The Rise and Fall of the Taconic Mountains* (Black Dome Press). Emmons’s key evidence, his disputed fossil work near the Battenkill River, was impressively correct, according to Fisher, who was a New York State paleontologist emeritus.

THE TACONICS’ ORIGIN SCIENCE HIT A NEW PHASE IN 1909, WHEN GERMAN American geologist Rudolph Ruedemann (1864–1956) proposed that the rocks had moved into place as an allochthon via large-scale thrusting from many miles to the east. Ruedemann became the third New York State paleontologist, succeeding Clarke (who had succeeded Hall) after many years as his assistant.

In a series of sometimes-dueling research reports, geologists debated this theory for the next half-century. Especially from the 1930s onward, “the ‘to be or not to be’ of the Taconic allochthon became a bone of contention,” according to an unpublished historical account from about 1990 by Charles Merguerian of Hofstra University.

The debate ended with a positive outcome in 1967, when the Chinese-born E-an Zen (1928–2014) introduced what he called a “new paradigm” with a USGS monograph titled “Time and Space Relations in the Taconic Allochthon.” By carefully documenting a pattern of faults in the region, Zen proved conclusively that the rock masses of the Taconics had traveled to their current position rather than originating as the stationary autochthon envisioned by many scientists of the day.

Much later in his life, Zen looked back at his eureka moment on a wild Taconic mountainside: “What exhilaration! To discover what was on the ground, for the first time ever, despite all the big-name geologists prior to that! About an hour’s work was lost in silent gloating, but it was fun.”

Leading up to his *Time and Space* monograph, Zen had already produced a 100-page annotation in 1964 of all of the Taconics’ published geological nomenclature—nearly 90 separate terms. Zen’s baroquely beautiful “Geologic Map of the Bashbish Quadrangle” of the South Taconics appeared in

1966 with an accompanying treatise and equal credit for the monumental amount of work for geologist Joseph H. Hartshorn of the University of Massachusetts (1923–2008).

Zen believed—at least initially—that the allochthon originated as a series of “gravity slides”—large slabs of sediment slowly gliding westward for dozens of miles down alpine-scale slopes of the primordial and partly submarine Green Mountains and Berkshires. But Zen’s last work on the subject, in 1981, left that question aside: “The nature and date of the uplift is unknown.”

This final report focused instead on geochemistry specifically at various places in the South Taconics. Using equations, he inferred the temperature and pressure at which rocks of the allochthon were metamorphosed into their present state. The data offered clues about the depth at which the materials were formed.

Currently accepted theory no longer credits gravity slides as the origin of the Taconic Allochthon, according to Karabinos of Williams College. Geologists now see microplates, called *terranes*, in the origins of the Taconic Range. “One-third of present North America consists of foreign terranes that formed elsewhere and have been welded onto the North American plate,” wrote Fisher, who served from 1955 to 1982 in the post originally held by James Hall. Fisher subsequently operated Fisher’s O.K. Rock Shop in Kinderhook, New York, until his 2012 death at age 90.



In 1967, E-an Zen documented faults in the Taconics to conclude that the range had traveled to its current position from elsewhere. UNITED STATES GEOLOGICAL SURVEY

JOHN SEWARD was a member of the Appalachian Mountain Club’s New York Climbing Committee for several years in the 2000s. His writing has appeared in the *Wall Street Journal*, *Sea Kayaker* magazine, and many regional newspapers.

The Woods Watch

Spotting climate change in the Catskills with longtime locals

Tracy Raczek



CRACKS IN THE SEDIMENTARY SHALE HAVE BIRTHED HUNDREDS OF hillside springs in the Catskill forests of upstate New York. Their gentle gurgling—which trickles or surges depending on the season, slope, and rainfall—often lures me from the forest’s deep, dry shadows into glaring emerald clearings with miniature bogs. It is a temptation to creep into the direct sunlight and closer to the sound. But, finally I resign to step my slurpy boot backward again, so that I won’t disturb the delicate ecosystem.

Circling these emerald clearings are feral apple trees abandoned by earlier settlers, passing birds, and deer scat. Some visitors to this land see its spirit first in the exquisitely gnarled branches of these wizened apple trees. It can be enchanting to encounter a woodland’s spirit through the most intimate of wooden doors, the apple tree—a tree of childhood nursery rhymes, easy climbs, and American legends.

I found my first spirit door on this land not in a wily live apple tree, but in a dead hickory tree. The broken snag stood 30 feet tall and 4 feet around. Striped yellow and red, charred with black mold, and pocked with rot and bird holes, the old hickory nonetheless stoutly guarded an entrance to the land’s spirit.

It is difficult to speak of all that can be seen in the world past such an entrance when one surrenders to spirit as much as to science.

Underground there is an endless pitch-black world where chemistry and seeming magic decide the fate of matter. A network of fungi speaks in code, breaking apart ancient shale to siphon unseeable scraps of carbon, nitrogen, and minerals upward to plant life and trees overhead. Above ground in the Catskills, some trees tower majestically while others languish. Ash and maple trees struggle the most.

I have spent decades applying science to serve the environment and sorting through climate solutions, with many years in the deep woods of the middle and western United States. But I am a relative newcomer to the Catskills. And so, to better understand these hills and the Catskill ecosystems, I rely on good-natured neighbors to reveal their phenological observations, seasonal patterns that only locals know—of the first snow each winter, the first ramps of spring, and which tree typically buds before others.

My neighbor Gianni noticed maples ailing in a hilltop grove on his land. He and his wife, Angela, walk the forest daily, each of them reverently

Looking up at old trees and listening to longtime locals help the author understand change in the Catskills. TRACY RACZEK

reciting trees' species as they pass. Gianni is a consummate woodworker who has painstakingly crafted trees into art, furniture, and a home. He is also a retired cell biologist who emphatically claims to be a pure empiricist. Yet he extols each tree's unique qualities as if it was his very own—and very perfect—grandchild. He fawns over each gall discovered on a tree as if it were a newborn. And his voice cracks, distraught, when he speaks of the maples' ailments. I believe he and Angela also see the spirit in these hills, but I cannot ask as I have promised the hickory not to divulge too much.

I now notice these maples struggling on our land. The maples' crowns are increasingly barren of leaves and paltrier each spring, as if pelted by a hail that never came. Their roots seem somehow disconnected from the underworld. From northern Wisconsin to Maine, many maple species are declining due to the warming climate. Heavier rainfalls and warmer shoulder seasons stress the trees. Less snowpack in winter exposes the roots to cold snaps. And although some maple species will fare better than others, with sugar maples struggling worst of all, their overall domain is expected to recede northward as the decades and warming inexorably continue.

Ash trees currently fare no better. The emerald ash borer—on a steady march through the mid-Atlantic and now in 35 states—is projected to forever change eastern forests, the understory, and autumn palettes. In lockstep with invasive bark beetles of the western United States and Canada, these insects are surviving warming winters without the steady deep freezes of past years and are killing tens of millions of acres of trees each year. Hikers, hunters, and sugar-makers bear witness to this demolition.

So does our neighbor Mary, who at 86 years old knows these woods well. She rides the rolling roads of our county in her horse-drawn two-wheeled carriage, with hands twisted and gnarled like the branches of an old apple tree from years of holding the reins. When younger she rode her Icelandic pony atop the cliffs above our cabin. Now she is fused to her horse-drawn carriage like a virtual centaur and frequently falls into a trance, local knowledge and folklore cascading down—of the disappearing blueberry bushes on the ridgetop; of the well running dry near the abandoned stone foundation; and of the birds singing for berries that she hopes will surround the soggy green meadows for years after she is gone. I steel myself to remember as much as I can—for my next ramble up to the ridgetop in search of any remaining blueberry bushes.

On the way to the ridge, I will pull out invasive plants as best I can, disturb the least I can, and pay attention to signs of change. I will pass that

snapped hickory snag, in those well-guarded woodlands, and walk through a field of massive boulders, each almost as tall as my neighbor's horse and many times as wide. Each perfectly distributed in that part of the woods, as if for a troll's board game.

Atop some of those boulders grow century-old ironwood and ash trees, still sturdy, like giant, green-wicked candles sitting on colossal gray altars. Amid the world's warming, the roots of one tree remain healthy and as fat as the tree's trunk. They wrap creepily over the boulder's edge, crisscross, and weave toward the ground, peeling up layers of the rock like an accordion's fabric bellows, then appear to gingerly lift the boulder from the forest floor offering a mossy jade den perfectly suited for an orange newt—and all the magic you can imagine.

TRACY RACZEK is a climate policy expert who served ten years in the United Nations, including three under UN Secretary-General Ban Ki-Moon in the lead-up to the Paris Climate Agreement. She currently advises companies and foundations on their climate strategies, dividing days between New York City and her off-the-grid cabin in the Catskills.

The Passing of Northern Pass

Reflection on a nine-year fight that halted a power line through the White Mountains

Kenneth Kimball



THE NORTHEAST'S LANDSCAPE IS LITTERED WITH THE ENVIRONMENTAL and social impacts of poorly conceived, large-scale infrastructure projects, many of which did not have to scale back in any significant way, not even when people protested. The environment lost. Davids fought Goliaths, but the Goliaths had almost limitless funds. Consider the large, rural landfill projects questionably permitted in New Hampshire and Maine that profit from in- and out-of-state hauled trash; trash derived largely from the successful packaging and plastics industries' lobbying powers that promote false recycling labeling and uneconomical recycling programs at consumers' and municipalities' expense.

This story, though, is about one large project that ultimately failed after major protests. The story of Northern Pass ended like the original biblical story thanks to the tenacity of the people of New Hampshire, an informal coalition of grassroots groups, municipalities, the Appalachian Mountain Club, and New Hampshire environmental organizations that included the Society for the Protection of New Hampshire Forests (SPNHF) and the Conservation Law Foundation (CLF).

Northern Pass was a corporate partnership between Eversource, the large New England utility, and the Province of Quebec's government-owned Hydro-Quebec power company. Created in 2010, the \$1.6 billion project proposed to bisect New Hampshire with a high-voltage transmission line from Canada to Massachusetts. This line would carry 1,200 megawatts of the company's electricity to the lucrative energy-demand center of greater Boston. As first proposed, the 192-mile-long portion through New Hampshire would have included a 32-mile-long corridor through the area of northern Coos County known as the Great North Woods. Then it would cut through the White Mountain National Forest and encroach on the Appalachian Trail. The project would have introduced over 1,500 new steel lattice towers two or three times higher than the surrounding trees. Where it would have shared existing transmission corridors, Northern Pass would have widened the corridor, increased tower heights, or added new towers.

Northern Pass became one of the most contested environmental issues in New Hampshire's history. When it first surfaced, neither its advocates nor its opponents imagined it would become an exhausting nine-year marathon

Activists flew balloons like this to illustrate what 135-foot-high transmission towers would look like. This one is flying in Bethlehem, New Hampshire, during a celebration after state regulators rejected the Northern Pass project. JERRY AND MARCY MONKMAN/ECOPHOTOGRAPHY

struggle that finally ended on July 19, 2019, in New Hampshire Supreme Court. Three times before, large New Hampshire development projects had failed or been modified after major public protests, all which made Northern Pass opponents hopeful during their struggle. In 1970, the federal government yielded to conservationists when it scaled back plans for an interstate highway through Franconia Notch. In 1974, Durham, New Hampshire, voters defeated an oil refinery shipping magnate Aristotle Onassis wanted to build. In the 1980s, large demonstrations at the site of the Seabrook Nuclear Power Station resulted in only one of two reactors being built.

AMC previously has opposed large-scale infrastructure projects on the Northeast's landscape.¹ In the 1950s AMC engaged successfully against the controversial Tocks Island proposal to dam the Delaware Water Gap in Pennsylvania and New Jersey. Then in the 1960s and 1970s came the successful pressure on the federal government to modify the proposed four-lane Interstate 93 through Franconia Notch. In the 1980s AMC helped to keep the proposed North Conway bypass out of the WMNF, and from the 1990s to the present it has leveraged major environmental mitigation for hydroelectric dam impacts on the publicly owned rivers in New England when they come due for relicensing. AMC also has helped stop inappropriately sited mountaintop wind farms, one of which would have abutted the Appalachian Trail in Maine and two of which would have closely surrounded New Hampshire's Cardigan Mountain State Park and AMC's Cardigan Lodge.

But as a 501(c)(3) nonprofit, AMC must by law be selective on which environmental challenges it takes up. It must consider the cost and whether the cause matches its mission. AMC must be prepared to engage long term and must bring creditable science to its debates. Considering all that, and relying on its environmental policies, AMC considered Northern Pass a mega-infrastructure project of major concern.

Northern Pass: A Fairy Tale

Northern Pass's public relations campaign sold the project as meeting the region's energy demand while reducing greenhouse gas emissions in the New England electricity markets. Hydro-Quebec claimed that its "clean" hydroelectric power would reduce the amount of electricity generated by fossil

¹ K. D. Kimball and M. Zakutansky, "Transmission Repercussion: The Price of Transporting Power through the Northeast," *Appalachia*, 64 no. 2 (2013): 20–27.

fuels, thereby (it said) offsetting the scar on New Hampshire's landscape with substantial reductions in greenhouse gas emissions, particularly in Massachusetts. So why would AMC question this proposed 1,200-megawatt project that would import more than the output of New Hampshire's Seabrook Nuclear Power Station? Because Northern Pass was a fairy tale: The facts did not align with its official story lines. The information presented by its million-dollar "experts" was false and ignored the fact that the technologies of today offered far better alternatives to meet the same needs.

Was the project really needed? ISO-New England, which oversees the New England electric grid's daily use and future needs, ruled that Northern Pass was not necessary to meet New England grid needs. ISO-New England determined instead that Northern Pass was just another commercial project competing on the New England grid. This decision meant that Hydro-Quebec could not seek to take land using the power of eminent domain.

Would Northern Pass reduce greenhouse gas emissions? Connecticut, Rhode Island, and Massachusetts had passed legislation for the procurement of significant amounts of "green energy" to address climate change. Those goals are noble, but the three states sought the least expensive projects with minimal concern over impacts outside their borders. They also did not determine how atmospheric reductions in greenhouse gases would be quantified. This lack of concern by the states that apparently needed the power from Northern Pass proved to be a sticking point in New Hampshire, which would be absorbing all the environmental impacts for other states seeking cheaper power.

Then there was the fact that the largest bidding companies in the Northern Pass plan, Eversource and National Grid, held seats on the Massachusetts committee that evaluated such projects and thus held an advantage over 40 other green power proposals. Hydro-Quebec was covering its bases too, bidding with different transmission partners and technologies in Maine and Vermont, where it planned to bury the line underground even though it had first said burying it was not feasible.

One cannot overlook the huge environmental disruption of one of the largest river-replumbing projects in the world, affecting most of the watersheds in Quebec and Labrador. Hydro-Quebec's reservoir system floods an area nearly the size of New Hampshire; its largest reservoir is more than 21 times the size of Lake Winnepesaukee. The power stations on the La Grande River divert more than 3.5 times the annual flow of the major river watersheds in New Hampshire combined (the Androscoggin, Saco, Merrimack, and Connecticut).



La Grande-1, one of 63 hydropower generating stations and 28 reservoirs run by Hydro-Quebec. Its reservoirs flood huge swaths of boreal forest and divert many rivers. WIKIMEDIA COMMONS

Environmental impacts aside, would Northern Pass, using Hydro-Quebec hydroelectric power, reduce greenhouse gases emissions as it proclaimed? If Northern Pass uses new Hydro-Quebec power, one should account for the new reservoir flooding of boreal forest (which has sequestered carbon in its biomass) and for the release of methane from the flooded soils. Methane is a greenhouse gas considerably more potent than carbon dioxide. Newly flooded boreal reservoirs, over their lifetime, may emit carbon dioxide, at a rate from a third to two-thirds that of a natural gas combined-cycle plant. If Hydro-Quebec intended to repurpose its existing hydroelectric power sales from lower-priced markets in New York and Ontario to the higher-priced market in Massachusetts, then the atmosphere would see only negligible greenhouse gas emission reductions as this diversion of power likely would require a fossil-fuel substitute. Both in New Hampshire's permitting process, and later in Maine's, Hydro-Quebec has refused to reveal under oath which plan is really in play. At the same time, Hydro-Quebec still claims its power is greenhouse gas neutral. And though Massachusetts selected Hydro-Quebec

as its source of power, the Massachusetts attorney general's experts questioned whether the Hydro-Quebec contract with the state guarantees incrementally "qualified clean energy."

Northern Pass Approached AMC in 2010

In a divide-and-conquer strategy, Northern Pass asked to meet, off the record, with Susan Arnold, AMC's vice president for conservation, and me. Northern Pass wanted AMC to suggest minor changes and mitigation—mitigation would be offset projects or programs to reduce the high-transmission line's environmental impacts. Northern Pass was making similar sales pitches to other environmental organizations and affected towns. Northern Pass presumed that major changes to the project, let alone denial of it, were not on the table. AMC's reaction, like that of many others, was, "Whoa. Not so fast." It was clear that this project would permanently scar New Hampshire's landscape for centuries to come. The Great North Woods, the WMNF, the Appalachian National Scenic Trail, New Hampshire State Parks, protected rivers, scenic highways, and the backyards of many people would all be affected, in many cases severely. Minor tweaks and minimal mitigation would not suffice. Following these so-called courtesy visits to AMC and other groups, in October 2010 Northern Pass filed with federal agencies a 26-page application for a presidential permit from the U.S. Department of Energy and a special use permit from the WMNF. The presidential permit was required because the project would cross an international border. The application left out most details of the construction, size, and environmental impacts but concluded with glowing statements about the benefits of reductions in greenhouse gas emissions and minimal environmental disruption.

An impasse soon followed. The legal battlegrounds were the required federal and state processes that permitted and certified energy projects; there were also, of course, public-opinion and political battlegrounds. Northern Pass would need many permits and certifications, but the three crucial ones were the presidential permit, the special use permit, and a certificate from New Hampshire's permitting entity for energy infrastructure projects, the New Hampshire Site Evaluation Committee (SEC). A single review process by the DOE would evaluate the first two, because both were federal permits, but each federal entity would issue its own separate decision. None of the three required U.S. permits considered impacts in Canada.



This photo simulation shows how Northern Pass's towers, as first proposed, would have looked to hikers crossing under them on the Appalachian Trail in Lincoln, New Hampshire. U.S. DEPARTMENT OF ENERGY

AMC cartographer Larry Garland and I quickly kicked into gear by conducting a preliminary landscape assessment of the project's probable visual impact to make up for the dearth of information Northern Pass itself provided. Using field visits and computer-generated visual footprint models with the best available data, we determined that, just in the middle and southern segments, more than 95,000 acres, including the WMNF, the Appalachian Trail, multiple state parks, state scenic highways and designated rivers, and areas where it paralleled Interstate 93 as the gateway to the WMNF, were at risk of visual degradation by the large transmission towers. AMC made its report² publicly available in 2012. When Northern Pass finally released more specific tower location and height data as it pursued its federal permits, AMC research staffers Cathy Poppenwimer, Georgia Murray, and I collaborated to develop a visual footprint impact model for a flyover simulation of the state resources that would be affected within a half-mile of the proposed towers. The video was released to the media in 2013 to help the public better

² L. Garland and K. Kimball, *Northern Pass Visual Impact Assessment* (Boston: Appalachian Mountain Club Research Department Report, 2012).

understand the landscape visually at risk. As AMC testified then, “This is more than big towers; it is big towers in some of the most important parts of the state relative to people who come to visit here and recreate.”

From the beginning of this multiyear battle, AMC and its allies argued that if the Northern Pass transmission line were to be built in New Hampshire, it should be buried in its entirety along an existing transportation corridor. Our rationale was that other proposed energy projects to bring Hydro-Quebec electricity through Vermont and Maine into southern New England would bury the lines either underwater or under land. And more cost-effective tools were available as alternatives to reduce greenhouse gas emissions and to meet customers’ peak-demand periods. Those alternatives included energy conservation, storing energy in batteries, and incentives to reduce periods of peak power demands. Peak energy demand is the most lucrative part of power contracts, and many solutions to the problem, though cheaper for consumers, are not financially rewarding for large power-producing and transmission companies.

The Grassroots Movement

By late fall 2010, New England residents began to learn that this massive transmission line proposed by Northern Pass would dominate their backyards from Canada to Massachusetts. They formed small groups that coalesced into larger groups. Citizen activists such as Susan Schibanoff,³ a retired English professor from the University of New Hampshire who lives adjacent to the WMNF, started a blog, *Bury the Northern Pass*, that featured the latest news, calls to action, and next steps. If ever there was an effective Paul Revere strategy to alert the public and keep it coordinated over the nine-year saga, it was her popular, factual, and informative blog. These groups organized periodic citizen workshops and invited AMC, SPNHF, CLF, and other groups, to suggest effective strategies during the complex permitting processes. State and federal politicians from both parties were also invited. Orange anti-Northern Pass placards sprouted like spring wildflowers in front of businesses and houses. The activists represented the whole political and socioeconomic spectrum up and down the state.

³ Susan Schibanoff is the author of an article in the *Appalachia* Winter/Spring 2021 issue, pages 104–115, “The Crawford Path in the News: White Mountain History and the Communications Revolutions.”



A homemade sign in Stewartstown, New Hampshire, opposed the Northern Pass project.

JERRY AND MARCY MONKMAN/ECOPHOTOGRAPHY

As a result, public hearings held during the state and federal permitting processes along the proposed corridor were crowded with local residents. Along with AMC, SPNHF, CLF, and other organizations was this sea of citizens clad in hunter orange who testified eloquently against this poorly sited project and the applicant's rosy analyses and who challenged misinformation about the project's probable damage. The dedication, professionalism, cleverness, and staying power of these thousands of grassroots citizens over almost a

decade made a huge difference. AMC encouraged its members through its Conservation Action Network to voice their opinions. The federal environmental impact statement (EIS) received over 7,560 comments, overwhelmingly in opposition. More than 8,000 people signed a petition in 2015 urging then-Governor Maggie Hassan to insist on the complete burial of Northern Pass. And the New Hampshire site evaluation certification process received over 1,102 written comments (742 of them non-repeating) in addition to oral testimony; 78 percent opposed the project as proposed, and of those 53 percent invoked potential visual impacts. State Senator Jeanie Forrester summarized it concisely: "It really is a testament to the people of New Hampshire, to their strength and fortitude, and to their commitment to preserve our landscapes. It was a battle of David versus Goliath, and we won."

Behind the Scenes: Determining the Rules of Engagement

In the less visible but no less important political world, AMC's Arnold coordinated with the New Hampshire congressional delegation to make sure that the federal environmental review process would be thorough. Working in the New Hampshire legislature, AMC and other conservation colleagues, along with citizen activists, secured passage of legislation requiring updated

rules governing how the New Hampshire SEC would review energy projects. AMC's senior scientist, Dr. Dave Publicover, proposed science-based environmental analysis requirements during countless meetings on the new rules. Many of his recommendations were incorporated into the final rules. These science-based requirements would later be used to separate the wheat from the chaff in the SEC's review. Early threats by the developers to use powers of eminent domain to complete the proposed corridor led to passage of New Hampshire House Bill 648 in 2012. Bill 648 prohibits any transmission line project to take land with eminent domain unless that project is a "grid reliability project," part of an effort to keep the electricity on everywhere even if part of the line experiences problems.

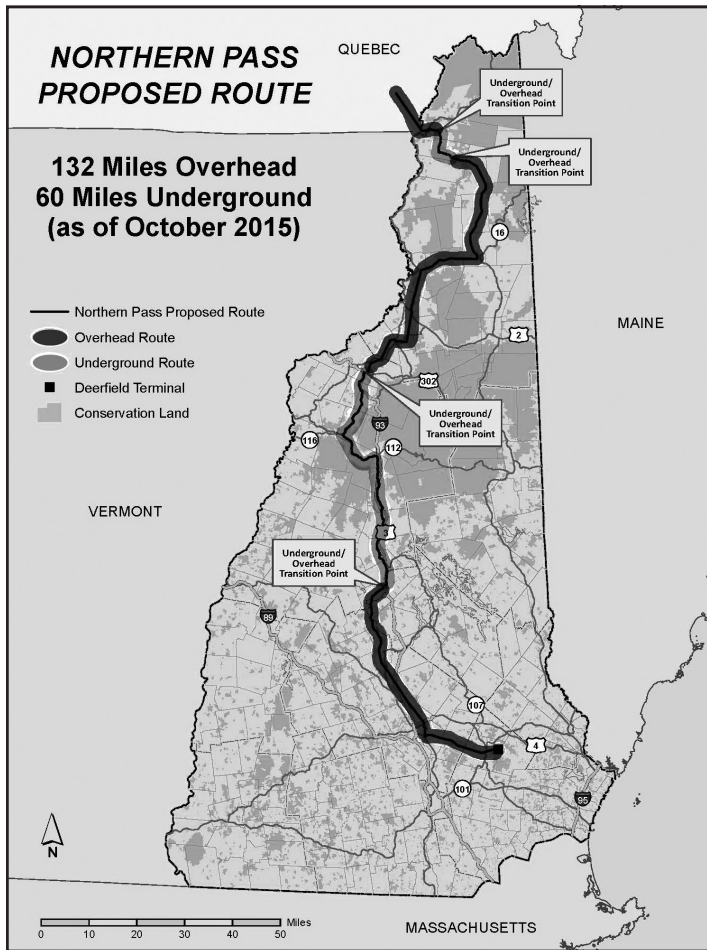
The Corridor's Land Chess Game

Now that Northern Pass lacked the power of eminent domain, the SPNHF, the state's largest land trust and with some of its own properties threatened, began an effective game of chess with Northern Pass's shell real estate entity by convincing landowners to sell conservation easements to SPNHF instead of selling their property or right-of-way easements to Northern Pass, despite Northern Pass's highly inflated above-market offers. In addition, Northern Pass failed to get permission to route its transmission corridor through the state's 171,000-acre Connecticut Lakes Headwaters conservation easement.

With the opposition united and deeply concerned about protecting the WMNF, it grew increasingly uncertain that Northern Pass would receive the required special use permit for the right-of-way. In October 2015, in a major reversal, Northern Pass suddenly said it could bury 60 miles of the 192-mile-long line. Northern Pass also said it could move its proposed overhead line out of the heart of the WMNF and that it would bury it beneath state and town roads. And after residents of Quebec protested, Hydro-Quebec agreed to bury portions of the line in Canada as well. The new burial route did not follow earlier ideas for more direct routes advocated by AMC, such as burying it entirely beside Interstate 91 in Vermont from Canada to the retired nuclear power plant in Vernon, Vermont. The Vernon plant was already grid wired to serve the Massachusetts electric market. In the end, Northern Pass spent over \$40 million to buy land in an attempt to snake the line through New Hampshire. And the project's proposed 60 miles of buried lines would be under narrow state roads through the towns of Franconia and Plymouth. Farther north, Northern Pass proposed to bury the line under town roads (without

town permission) that served local farms. With little credibility, Northern Pass’s out-of-state “experts,” who were paid millions of dollars, claimed such road closures would have no economic impact on businesses or tourism even though these roads in part or whole would be closed for months to accommodate the line burial.

With much ballyhoo, Northern Pass felt confident it could get this newly revised project with partial burial past the New Hampshire SEC; Northern Pass revised its federal applications and applied for a state certificate in October 2015. Accompanying this revised application was a \$200 million fund



Northern Pass’s modified proposed route before the New Hampshire Site Evaluation Committee. SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS

called Forward New Hampshire, managed and overseen by Eversource, the Northern Pass developer that AMC described in public comments as “primarily a slush fund to enable Northern Pass to direct funding to where it most needs to bolster support or meet its internal needs.”

The Legal World Fight—Where the Crucial Certificate Decision Is Made

Between the removal of the proposed overhead line in the WMNF and the limitations on the issues considered during the presidential permit process, it seemed likely that Northern Pass would be permitted at the federal level. But the real test of the proposed project would be before the New Hampshire SEC, which uses an adjudicatory process including formal interventions and expert witnesses filing testimony subject to cross-examinations by all parties, including the state. Northern Pass filed its application in 2015, but it was incomplete. Northern Pass periodically asked for halts to make further revisions. What should have taken a year took two. The SEC permitting review process produced more than 20,000 pages, 2,176 exhibits, 70 days of evidentiary hearings, and multiple site visits. AMC staffers attended many of the hearings and site visits. There were 160 formal interveners, most of them opposing the project, including 23 of 31 affected municipalities. AMC was represented pro bono by retired lawyer and former AMC board member William Plouffe. AMC cartographer Larry Garland and I served as an expert witnesses on the inadequacies of their visual impact analysis. Our other expert witnesses included Chris Thayer, former AMC hut manager and director of North Country programming and outreach, who testified on New Hampshire’s outdoor recreation tourism market. AMC Assistant Research Director Dr. Dave Publicover testified on ecosystem impacts of the proposed 35-mile corridor.

Northern Pass’s experts, lawyers, and resources were substantial. They included the former commissioner and assistant commissioner of the New Hampshire Department of Environmental Services and the former chair of the New Hampshire Public Utilities Commission and SEC.

In the end, this corporate Goliath spent over \$318 million promoting its plan, while citizens, town officials, environmentalists, and the citizens groups, municipalities, environmental organizations, and the counsel for the public hammered away at misinformation. Days before the decision date by the New Hampshire SEC, the U.S. DOE and WMNF issued project-favorable permits for the revised application. And on January 25, 2018, one week

before the decision, the state of Massachusetts had selected Northern Pass as the winning bidder of its “clean” energy contract. New Hampshire Governor Chris Sununu also favored the project, and some protestors claimed he did so because of Eversource’s political contributions.

Then the New Hampshire SEC, acting on the four required criteria Northern Pass must meet:

- Ruled that Northern Pass did have financial, technical, and managerial capabilities.
- Determined Northern Pass would have an unreasonable adverse effect on the “orderly development of the region,” such as construction, traffic, tourism, land use, municipal views, regulations, property values, and more.
- Made no decision on whether Northern Pass would hurt aesthetics, historic sites, air and water quality, the natural environment, and public health and safety—because Northern Pass had failed the above criteria, and
- Did not rule on whether Northern Pass would serve the public interest because the project had failed the other criteria.

It was a nail-biting time. The first criterion passed on February 1, 2018. The next day, the committee voted unanimously to deny the permit, ruling that the Northern Pass expert opinions on tourism and property values were not credible. And the SEC ruled that the applicants had not proven Northern Pass “would not overburden existing land uses within and surrounding the right-of-way and would not substantially change the impact of the right-of-way on surrounding properties and land use.” The committee said that despite 70 days of hearings, 154 witnesses, and 2,000 exhibits, “we cannot find that the applicant has met its burden of proof.”

Stunned Northern Pass officials, who had assumed that money, hired ex-state officials, and expensive lawyers and consultants would win their way to a lucrative contract, soon thereafter petitioned for a decision review. They lost again and so took the case to the New Hampshire Supreme Court. Their argument, that the New Hampshire SEC decision did not follow due process, was poorly crafted and only vaguely substantiated. At the New Hampshire Supreme Court, AMC was represented by pro bono lawyers from Foley & Lardner, while a Harvard Law School student, Gabe Doble, helped draft an

excellent brief. On July 19, 2019, the court unanimously upheld the New Hampshire SEC's decision.

New Hampshire's landscape, the WMNF, and the economic vitality and quality of life enjoyed by the citizens and businesses of the threatened communities, were preserved.

There was no single hero of this tumultuous and draining campaign that took nine long years to win. Though the list of those who collaborated so effectively is too long to list here, AMC was proud to play its part alongside so many effective organizations, municipalities, and citizens.

Postscript

With the defeat of Northern Pass, Massachusetts selected another Hydro-Quebec partner, Central Maine Power (the New England Clean Energy Connect project), as its alternative bid winner. This project has many of the same defects as Northern Pass, including 53 miles of new corridor through the undeveloped forest of the western Maine mountains region. As in New Hampshire, the project has met strong opposition from local residents and municipalities, as well as from several conservation organizations including AMC. Though CMP has now spent over \$20 million in an extensive political campaign, polls suggest that 65 percent of Mainers oppose the project as proposed. However, based partly on greater environmental mitigation compared with Northern Pass, the state of Maine's permitting agencies approved the project in 2019 and 2020, and the required federal permits were issued in early 2021. In August 2021, a Maine superior court ruled Maine's Bureau of Public Lands did not analyze impacts on lands it would lease to the project, a requirement to determine if Maine legislature approval of the lease is required. As this journal went to press, Maine's Department of Environmental Protection will hold a public hearing on whether to suspend the permit it had issued, and in November a citizens' petition statewide referendum vote is on the November ballot.

DR. KENNETH KIMBALL is the retired director of research for the Appalachian Mountain Club. He oversaw AMC's technical strategy in its opposition to the Northern Pass project and has represented AMC in other energy siting cases.

A Day—and 150 Years— in the Nordmarka

Skiing through a Norwegian forest is everyone's right

Sam Martland



THE ODDEST MOMENT THAT DAY WAS WHEN I CAME TO THE LIBRARY—sort of—among the trees. At a complicated junction of groomed and ungroomed trails, I chose an ungroomed one that looked like it would lead to a good hilltop view. A few hundred feet up the slope, the trail led me past a little green sign that said “Framtidsbibliotek.” I came upon the trees by chance, but I knew about the project. In 2014 the Future Library Trust and Scottish artist Katie Paterson planted an acre or so of firs in a recently cut area especially so that in 2114 they can be cut down and made into paper for a special set of books. Every year the trust commissions a new book, and the Deichmanske Bibliotek in Oslo seals it up unread until then. Thus, two of Norway’s defining shared resources, public land and public libraries, were together that day on that green and white mountainside.

I was working my way on snowshoes through the Nordmarka, a Norwegian forest. The trails in that part of the woods run mostly north and south, but I was headed east, so most of the time I was off trails. Norwegians do even more cross-country skiing than an average American viewer of the Winter Olympics might imagine, but they rarely snowshoe. I wandered the trackless woods alone except when I crossed ski trails. It was the best time of the year to do it. The day was clear and bright, with just a touch of a breeze. It was late enough into the winter that the sun had come back up in the sky from the yellow days of December. The snowiest winter since 1952 had put more than a meter of snow all through the woods, and it had crusted so that my snowshoes barely left tracks. Places that would have been swampy and buggy in spring, summer, or fall were easy to traverse.

EARLIER IN THE DAY, I HAD PUSHED THROUGH A THICKET AND COME OUT onto Kong Olavs løype, a cross-country trail named for the king from 1957 to 1991, who skied it often with his dog. He hadn’t been born Norwegian, but Danish. In 1905, when Norway voted to stop sharing Sweden’s king and take up full independence, the country invited a Danish prince to become king. The new king changed his name to Haakon and his son’s name to Olav; I don’t know if he set out to have his son be a great Norwegian skier, but on purpose or not the son did just that, building trails and jumps in the public park around the palace from a young age and eventually competing in the ski jump championships at Holmenkollen. Weaving through the firs and

A picnic table along a public trail offers a respite with a view of a lone farm. SAM MARTLAND

birches, his favorite trail led me from patches of gray shade into patches of bright sun and back again, a perfect scene for a king to be a Norwegian, or for an American to try doing the same.

After Olav grew up, but before he was king, these woods turned warlike. The Nazis invaded Norway on April 9, 1940. Men escaped through these woods, many along these very trails; according to C. J. Hambro, president of Norway's parliament from 1935 to 1945, some of them "met in the ski hills," formed the Sørkedal Ski Company, and presented themselves to the army "as a fighting unit thoroughly welded together." He wrote about this in his book *I Saw It Happen in Norway* (Hodder and Stoughton, 1941). Throughout the war the marka was a big asset to the resistance, one of the reasons Germany needed well over 300,000 troops to occupy a country of little more than 2 million. Here and there in the woods little signs mark the location of clandestine radio stations. From southeastern Norway people hiked to Sweden to escape, and today special markers point out the Flyktningeruta, one of many routes used by refugees, to modern hikers, much as stone crosses mark the pilgrimage route to the Nidaros Cathedral in Trondheim and white blazes mark the Appalachian Trail.

I ate lunch all alone among young firs on the side of a ridge with views to fir-topped hills miles away—a lovely modern Norwegian meal of pita, hummus, and vegetables from a small supermarket owned by the children of Jordanian immigrants. The steam from my hot chocolate rose straight up in the still air.

There was no one to tell me to stay on the trail. No one was allowed to. A Nordic custom—and Norwegian law—called *allemannsretten* (everyone's right) allows all to hike, ski, and camp on all undeveloped land. It allows anyone to cross farmland when it is covered in snow, and to pick berries, flowers, and mushrooms in season. Politeness discourages barging right up to the edge of people's yards and requires asking permission to camp near homes, but there is no posted undeveloped land in Norway, Sweden, or Iceland. In the winter, most people do stay on trails because the favorite outdoor activity then is skiing and many trails are groomed, but in the summer people wander through the woods, leaving a maze of little paths through the blueberry bushes that many American hikers would find distasteful. In summer 2020 Norwegian park authorities wanted people not to bother the musk oxen in Dovrefjell-Sunndalsfjella National Park; they asked visitors to stay on the designated trail, but they couldn't legally require them to. In general, the right to use the outdoors freely translates into many people hiking and camping and

strong public support for keeping open space open, even in the face of the similarly strong urge to build and visit *hytter* (cabins or cottages ranging from primitive to luxurious) out in the woods. In June 2021, in fact, one town with a lot of *hytter* decided not to allow any more.

As I picked my way down a steep slope in a dark green patch of woods, I saw that I was coming to a groomed trail. I came out of the trees about half-way up a steep stretch of a hundred yards or so. An older woman was working her way up on skis. Slowly and carefully, with far more skill and balance than I would have had (not saying much). I kept out of her way and off the ski tracks, and remembered a moment not many days before: Walking down the hard-packed middle of another trail, I had seen three skiers, with cargo sleds in tow, come around a bend—one in each set of ski tracks and one in the middle heading straight for me! I had leapt over one set of tracks and landed up to my waist in fluffy snow just off the trail. “Det er god hensyn!” called out one as they passed: “That was considerate.” Today, I waited for the lone skier to go by uphill before I followed the trail downhill for 50 or 100 yards to where it met three others in a maze of diamonds and triangles. Two young women glided past on one of the other trails, pulling babies in special sleds.

On the far side of the crossing, a footpath wound up the hillside enticingly. The slanting sun lit up the southwest-facing slope. A homemade wooden sign showed that the path was not part of the official system. The little path tempted me, but my map and my watch insisted that I keep heading east. As I headed for the main trails again, a rumbling announced the approach of the only other person I was to see that day: the driver of a municipal trail-grooming truck.

THAT’S RIGHT: A *MUNICIPAL* GROOMING TRUCK. I WAS WITHIN THE CITY LIMITS of Oslo; my snowy adventure took me about a half-mile from the city’s outer houses. Most of the trails I crossed were carefully groomed public ski trails, some even with streetlights. I was making my way from hilltop Frognerstøseter station (469 meters above sea level, according to the signs on the platform), at the end of what just might be the biggest ascent made by any city subway system in the world, to lakeside Sognsvann station (198 meters) at the end of another line. But don’t let proximity to the city center fool you. These two stations are jumping-off points for outdoor adventure. At Frognerstøseter, people ski right off the end of the platform into the surrounding woods. Some go for a couple of hours, but others go for days. You can ski or walk for twenty miles in some directions without crossing a road open for



The Frognerstøseter station overlooks Oslo 469 meters above sea level, at one end of a subway line. From here, one can ski twenty miles in either direction. SAM MARTLAND

general use. I was nearly alone and enjoying a feeling of peaceful remoteness. That's how the Nordmarka is, at least on a lot of weekdays.

Not every weekday is peaceful, and not everywhere. Subway, bus, and trolley—or just walking—can take you to the forest from anywhere in Oslo in perhaps under an hour, usually well under, and people take advantage of that closeness. All winter you see people in Oslo carrying skis on trains, buses, and trolleys. All year you see people with backpacks. At the beginning of my hike, a few hundred yards from Frognerstøseter station, I passed 50 or 100 kids out skiing with their school. They were a typical group of Oslo schoolkids: features and colors from all over the world, all dressed warmly and out enjoying the outdoors. They weren't all experts; three girls tried over and over again to herringbone their way up a little slope, and fell again and again, laughing uproariously. My own kids had been out skiing with their school, too. They went to Språksenteret, Oslo's special intensive Norwegian-as-a-second-language school for new immigrants, which taught skiing and hiking as parts of becoming Norwegian.

In March and February 2020, as the COVID-19 pandemic began, Norwegian officials said explicitly that it was a good idea to hike. Indeed, outdoor life is so central to Norwegian life that hiking popped up in all sorts of announcements and FAQs. One of my favorites was, “Can I go hiking with my 83-year-old mother?” I loved the image of the active mother, the close parent-child ties, and the idea that going out into the woods would be a compelling activity for people of any age. Even people in home quarantine were allowed to hike if they could get from their homes to the marka without getting close to other people. “Nearly everywhere in Norway there are places where one can hike alone,” said one national health official, and because of the Nordmarka this was true even for Oslo. When these orders first went out it was still cross-country ski season in much of Norway; authorities throughout the country stopped grooming the ski trails so that people would stay home or spread out through the woods. So many people took advantage of the marka that in late March, with the snow gone, the trash cans that the city of Oslo maintains along some of the bigger ski and bike trails were filling up faster than workers could empty them even on a five-times-a-week schedule.

The headquarters of Den Norske Turistforening (DNT), the Norwegian Trekking Club, share one of Oslo’s main squares with a government ministry, the national labor union organization, and two major political parties. Den Norske Skiforening (DNS) or Norwegian Ski Club is not so prominently housed, but it also weighs in on national issues that affect “open-air life,” from trail maintenance to wind farms. Partly thanks to that political weight, no major road leaves Oslo going west or north, and I could find remote woods and acres of clean snow close to town.

Of course, given Norwegians’ particular ties to their forests and open space, staying on the trail is for convenience, not to keep the rest of the woods pristine. Most of the vast forest is managed for timber, so my snowshoe route took me through groves of tall firs and cutover patches scattered with saplings. It was precisely that type of forest management that made it a good home for the saplings of the Future Library, which could be planted in a recent clearing but grow up in a recreational forest where many people will stumble on them just the way I did.

Some of the Nordmarka belongs to the city of Oslo, but most of it is a centuries-old timber estate. My day depended on *allemannsretten*. *Hytter*, huts in the Appalachian Mountain Club sense, some staffed, some unstaffed, some belonging to universities and scout groups, and some serving waffles and coffee, dot the Nordmarka. There are several chapels for people who want

to combine a hike and a church service. DNT and DNS maintain huge networks of marked trails. Many of the cross-country ski trails have lights, even miles into the forest. From mid-November through early February, the sun rises after 8 A.M. and sets before 5 P.M., and on December 21, it rises at 9:17 A.M. and sets at 3:11 P.M.

One night in January I took my daughter to cross-country ski lessons at a huge outdoor base with hundreds of people, from middle-aged folks skiing with their dogs to little kids learning to ski jump. Snow was falling, lights were shining, and biathletes' rifles were cracking in the background. Another hardy group was playing soccer in the snow. Armed with snowshoes, I took a footpath uphill among the trees while the lights on the trails a few hundred yards to either side of me made an eerie artificial moonlight.

I missed the bus home with my daughter, but it was easy to walk home that night. The city goes right up to the forest. In most directions there is no gradual suburbanization. Houses on small lots, or even apartment buildings, just stop short at the *markagrensen*, the legal border of urban development. The *markagrensen* began as a technological and health limit. In the 1600s Oslo began to pipe water from its small central river, Akerselva. During the next three centuries, both Oslo and its water system grew. As Oslo expanded its water system through the 1800s, the main intake moved farther and farther up Akerselva, reaching upstream of the sawmills, textile mills, and other more polluting factories. The more the city drank, the less the factories had for their wheels and turbines. Eventually the city took its water from the river's Maridalsvannet, a natural lake raised by a small dam, and was not inclined to pump water above that height. The elevation of the lake became the limit of urban development. Oslo continued to fight with Akerselva factories over how much water it could take, but it cooperated with the big timber company that owned much of the Nordmarka to manage the water in Maridalsvannet. In the ensuing decades, many of the dams and reservoirs originally built by the timber company became part of the drinking water system. The city also bought land around the lake to keep the water clean. Simultaneously, the growing urban population of Norway took up skiing and hiking as a connection to the land and as nationalist activities.

By the time the built-up area reached the limit originally set by the water supply, public opinion had made that line almost impossible to cross. Some development followed the winding Holmenkollen electric railway up the city's largest hill toward Frognerseteren early in the twentieth century, but otherwise the city mostly stayed below. The final stop on that line, where

I started my snowshoe trek, is out in the woods, with just a few outdoor-oriented businesses nearby. The *markagrensen* moves only by deliberate government action, often against substantial opposition. Oslo's suburbs therefore lie south of the city on either side of the fjord, or northeast of the city along the main roads and rail lines to the northern parts of Norway, not in the forests on the city's north, west, and east.

I'M FINISHING MY WEEKDAY HIKE NOW. AFTER THE LIBRARY, I CUT CROSS-COUNTRY again. A bit of floundering in powder brought me up a steep slope to another ridge with a view to the east. Sognsvann itself, a former reservoir, was hidden from view, but I could see the much larger Maridalsvannet a couple of miles away, with wooded hills beyond it and just a few buildings in sight. Time was running on, and so must I. The next ski trail I hit ran in the direction I needed to go, so the snowshoes came off and went under one arm while I hustled down the middle of the path. Sooner than I would have liked, but just in time to catch the subway down to pick up my son from school, I emerged from the forest, tramped across the granite dam at Sognsvann, and climbed the short slope to Sognsvann station. Two months later, at a picnic organized by my seventh-grader's Språksenteret classmates, one of their teachers would casually mention that before the picnic she had skied 30 kilometers, and on this day I joined a thin stream of skiers and backpackers; at the station we mixed with people dressed more like historians—or archivists—because the national archives are right there at the station, next to the trailheads. I was back in the city after my day in the marka.

SAM MARTLAND is a professor of history and Latin American studies at Rose-Hulman Institute of Technology in Terre Haute, Indiana. He lived in Norway in 2017 and 2018.

Be Wary of the Hind-Leg Kick

*Memories of donkey driving in the
Sandwich Notch area of New Hampshire*

William Geller



FOR FIVE SUMMERS, FROM 1964 THROUGH 1968, I TAUGHT OUTDOOR skills to Boy Scouts at Mead Base, a camp at the foot of Mount Israel, at the southern edge of New Hampshire's White Mountain National Forest. The most popular trips of our six one-week summer programs were treks using donkeys. Not many people talk about the era of donkeys in the White Mountains. I have realized recently that my memories of these donkeys can paint a picture of what it was like to use animals. I will begin with the first donkey trip I led, in 1964.

The trip, like most of our trips, started on Monday morning with packing and ended on Friday afternoon. Our base camp is known today as Friends of Mead Base Conservation Center. Then it was called, officially, the New Hampshire Daniel Webster Council Boy Scouts of America Mead Wilderness Base Camp. The old house and tenting sites lie off Sandwich Notch Road. We spent hours on a Monday morning packing the week's food supply. I remember 25 pounds of saltine crackers and pack bags balanced on the backs of four donkeys. The boys were all eager to leave. We would start at Mead Base and head west through Sandwich Notch at the southern edge of the White Mountain National Forest, and climb the old Beebe River logging rail bed to its terminus at the base of Mount Whiteface. We would camp out four nights: near Guinea, Black Mountain, and Flat Mountain Ponds. We would return via the rail bed and Mount Israel to Mead Base on Friday afternoon.

Using donkeys was a quirky practice many have forgotten. William L. Putnam wrote in his book *Joe Dodge* (Phoenix, 2012) that donkeys served as pack animals in the White Mountains as early as 1930. Dodge, the hut manager for the Appalachian Mountain Club, formed the White Mountain Jackass Company in 1929 and by the next year was using 40 small donkeys. The animals, also known as burros, packed in supplies to AMC's high-mountain huts. The tradition continued until 1964.* Horses had done such work during the Ethan Crawford era of the mid-1800s, carrying visitors and supplies to the summits of Bald Peak and Mounts Chocorua, Hayes, Kearsarge, Lafayette, Moosilauke, Moriah, Osceola, Pleasant (now Eisenhower), Washington, and

* According to Putnam's research, also reported in *New Hampshire* magazine, Dodge bought the donkeys from Roswell, New Mexico.

A muleskinner above treeline with a loaded donkey. Donkeys carried loads in the White Mountains off and on in the early- to mid-twentieth century. AMC LIBRARY AND ARCHIVES

Willard. But in the twentieth century, people had taken on carrying gear until Dodge brought in the donkeys.

In hindsight, I understand the donkeys lured scouts to the mountains and made backpacking more exciting. Few of the scouts we led had ever done an overnight backpacking trip before they came to us. No one had been out for multiple days, either, but the scouts arrived ready to learn. With no particular time schedule between sunrise and sunset and short daily hiking distances, they lived in an optimal leaning environment. Their immersion experience started Sunday afternoon when they arrived, moved into a lean-to or tent, and in an assigned group of seven to eight scouts cooked the evening meal and the following morning's breakfast on a wood fire. Upon their return on Friday they used the camp's bathing facility, the Beebe River, and cooked their next two meals.

The donkeys could carry so much more than people that the boys could focus on learning backcountry skills throughout the trip in an area where leaving food drops was not possible. Even though we used dehydrated food, it still weighed more than an 11- or 12-year-old boy could carry. Most scout packs were frameless canvas backpacks. These were rectangular canvas bags about the size of a paper grocery bag with a top flap and narrow unpadded belt webbing for shoulder straps. Perhaps one outside pocket ran along the back. A few side grommets allowed tying something to the pack. The scouts had to carry their generally bulky sleeping bags, too. The donkeys didn't carry pots or frying pans: Each group of seven or eight boys shared in carrying those things.

Donkeys were new to me, and these donkeys we worked with had no experience as pack animals. A farm owner had delivered them the weekend before the trip. He left us with a tin of bag balm for any saddle sores the donkeys might develop. My ranger colleague Jerry had worked with a donkey on the previous year's trip. We had only one traditional looking packsaddle, so we made additional saddles from U.S. Army surplus backpack packboards with a belly strap of surplus webbing.

ON MONDAY MORNING OF THE TRIP, WE LOADED THE FOUR DONKEYS WITH duffel bags full of food. Getting them to walk on the first day provided entertainment right out of the old cartoon image of the loaded saddle slipping around to the donkey's underside. Before we started, Jerry told us to be wary of the hind-leg kick. Donkeys could kick straight back and out to the side. They sensed immediately what was coming when the heavy wool blanket went over their backs. We'd follow it with an empty saddle, but they tensed their belly muscles, making it exceedingly difficult to tighten the strap so that the saddle

would stay put. They began moving and kicking; nothing can hold a donkey still, so we learned to load a donkey while the donkey was in motion. The first time the loads went on, they'd try to buck them off, but with diamond hitches holding the loads to the saddle, they stayed.

How we got the donkeys to walk, though, still amazes me. They had no interest in leading the way, but once the line of scouts disappeared into the woods, they moved as long as we tugged on the lead ropes and patted their rumps. Once underway, all was fine. Their antics at starting off stopped within a couple days on the trail. Yet, even a few years into this routine, the animals could surprise us. The third year we had two donkeys, a "jack" and a "jenny," plus two ponies. We figured out that if the jenny led, the jack would follow, but we could not affix a packsaddle to either pony, not even with a travois. So that year, I carried a load AMC hut crew style and the two donkeys carried the remainder.

The donkeys' first night on the trail in my 1964 trip was off the Guinea Pond Trail (an old railbed), which crossed a rocky streambed, the Beebe River (which flowed out of Guinea Pond). The scouts stretched a tether line across a grassy area away from the water and tightly tied each donkey's lead rope to the line to prevent tangles. They kept donkeys tied away from trees to avoid ropes wrapping around trunks. This practice also kept them from feeding on and destroying the trees, and it maximized their feeding radius.

Nearby the scouts worked quietly in four groups with no hatchets, axes, or saws to make camp in a previously un-camped area. Each group pitched two 8-by-8-foot canvas tarps for sleeping, built a cooking fire site in the rocks near the flowing water, and collected firewood for both the evening and morning meal. Jerry and I circulated among the scouts offering encouragement and suggestions and answering questions. We did not provide rope for the tarps, and the scouts managed just fine. Collecting firewood was simple enough, and the scouts learned to distinguish between softwood branches and hardwood. When burned, the hardwood did not blacken pots and left the best bed of cooking coals.

Cooking dehydrated food required everyone's hands. A couple of scouts tended each group's fire. We had no fire grates, so two others in each group held a long dead stick with pots hung from it. Three more scouts stirred with sticks to ensure nothing stuck to the bottom. The challenge was to cook the dehydrated food to the right consistency and not burn it. If a pot's contents burned, then the tending person cleaned it. For cleaning we taught them to use gritty mud, fine sand, and mosses as scrub pads first, before relying on the single soap pad issued to each person.



A trail worker unloads donkeys at Madison Spring Hut in 1940. AMC LIBRARY AND ARCHIVES

The donkeys required no special food; they foraged on the natural grasses. Once a donkey had eaten the grasses within the radius of its tether rope, a scout moved it to a new spot on the line. For water the scouts unhitched the donkeys and led them to it.

At this site the following year the scouts were able to compare the donkey tracks with those of moose. None of the scouts realized moose were in the White Mountains and had never seen a moose, its tracks, or its dung. I hadn't either, until the summer of 1964. Our group found a section of the Algonquin Trail on the nearby Black Mountain ridgeline deeply padded with winter dung of a large unknown animal. Back at Mead Base we identified it as moose dung. In subsequent years we generally saw moose tracks in the Guinea Pond area, but we never saw a moose.

Tuesday morning of the trip, the donkeys woke most of us with their usual reveille call. As soon as a first person was up and moving about 5 A.M. the donkeys brayed. The scouts quickly built their fires and began cooking breakfast. The morning menu included hot cocoa, applesauce, hot cereal, and pancakes or French toast with syrup. No time was set for leaving camp, so cooking, eating, cleaning up, repacking, and removing the signs of a camp spot were done thoroughly as part of the learning experience.

We set out with the donkeys that morning to Black Mountain Pond, which was under the exposed cliffy face of Black Mountain, the predominant south ridge of Sandwich Dome. The trail was full of dark muddy sections without boardwalks. The boys leading the donkeys threw back the lead ropes and hopped across hummocks; the donkeys walked straight through the mud holes. All went well until one donkey sank into a hole and could not pull up a hoof. The donkey stood still and sank a little deeper. A bunch of us tried to lift it out, but we sank to our knees. Then someone thought to remove the packs. Once unloaded, the donkey calmly freed itself.

After the usual non-cook lunch at the pond near the shelter, the scouts made camp again, this time in a setting much different from that of the previous night, and then enjoyed a swim in the pond. The primary challenge here was a safe fireplace site; they had no rocky streambed in which to build. They pitched tarps in the woods on the low ridge behind the shelter. The pond's beavers seemed to like the scouts and joined them in the water. Adding to the fun was a rowboat with a hole in one end; they learned how to sit with the hole out of the water. Of course we were all skinny-dipping and air-drying. During my five summers in this area we never encountered another person or group.

The scouts really liked this site, so in subsequent years we spent two nights here and climbed Sandwich Dome without the donkeys. During a previous week the scouts opened up the overgrown, steep, and unused trail from the pond to the dome's Algonquin Trail, which was on top of Black Mountain. The dome, with its magnificent view into the core of the White Mountains, provided a mountain climbing experience that I hoped generated confidence and fueled dreams of climbing other mountains.

Amusing as the donkeys and mud were, we realized each summer's combined visits were having a negative impact. Even though the scouts cut no trees, our camping here five times in 1964 had worn the earth and visibly thinned the nearby forest of its breakable firewood. The following year we camped at the opposite end of the pond. A year later, we used a beaver meadow area west of the pond, and the subsequent year we stopped using the Black Mountain Pond Trail and moved out of the area entirely to what we called Ghost Camp. Walking the donkeys on the old railbed seemed nondestructive.

The donkeys had no trouble reaching Ghost Camp via a bushwhack route we kept camouflaged. The campsite was in a hardwood grove on the banks of a nice stream with a big "bathtub" and access to the dome via a bushwhack. The camp name stemmed from the many ghosts' eyes we felt watched over

us each night. Abundant in the standing trees and on the ground was foxfire fungus; some scouts produced “glow art” with it for a subsequent evening. The only indicators of our presence were a long 3-foot-diameter beech trunk table with pulp wood sticks for seats on either side and an oven.

The donkeys influenced the building of the oven and the baking activity. The scouts carried in pulp sticks to create a waist-high log crib with a log top covered by a layer of sand and two lines of large stones between which they built a fire and on which they set a discarded logger’s rusted metal drum on its side, the oven. Thanks to the donkeys’ backs the after-supper baking included corn bread, and chocolate, vanilla, and buttermilk cakes; all heavily garnished with berries picked in the local area.

In 1966, my third summer, we added a second donkey trip to replace the camp’s survival skills week program, and we incorporated some of its activities in the donkey trips. During my first two years experts who came and worked with the scouts included an edible wild plant and berry specialist, Curt Schneider, and the area game warden, Dave Hammond.

As we moved through the woods each day on the donkey trip, we helped scouts identify edible wild berries, plant tubers, and plant greens. We talked about the saying “anything that walks, crawls, or swims is edible.” Ghost Camp area was diverse and enabled us to spend a morning collecting food for the midday “edible wild food buffet” that included such items as starflower root, Solomon seal root, berries, frog, snake, chipmunk, and salamander. The scouts usually challenged me to eat a salamander and a leech. The salamander was crunchy with a fishy flavor; the leech I swallowed whole.

On Wednesday morning the scouts packed up again and headed to Flat Mountain Pond area for our last two nights on the trail. By this time the donkeys knew the routine and the scouts knew how to handle them. Invariably late in the afternoon around swim time someone would ask, “Can we ride the donkeys?” The area had some open spaces near the pond and shelter. The donkeys were good natured and let scouts sit on their backs—but most of the time would not walk around. Given their pronounced spines they offered uncomfortable seats.

Thursday was a day the donkeys remained in camp alone while everyone went off on a map-and-compass course. Mount Whiteface was one destination and another was the Flat Mountain area. Before starting and every time we changed direction, the scouts oriented their maps to obtain a bearing. If any pair’s bearing was not similar to the common bearing, then everyone repeated the exercise.

Even though we were at Flat Mountain Pond two to four nights a summer, by 1968 we knew it was time for another area. On a compass exploration to Flat Mountain, we found an extraordinary spot that the scouts immediately liked. Among ledges we followed a water flow through what looked like a knife slice in the granite, into a cave, climbed a waterfall, and exited a hole at its top. The donkeys returned with us the following week when we built a sleeping platform with a view for 35 scouts on the sharply sloped granite ledge using no tools or rope, only old rail spikes and dead and rotted trees.

Leaving the donkeys alone at a campsite while we took a half or full day's excursion never occurred to me as being potentially dangerous for them. In today's environment I think about bears, but back then with all the eyes we had looking for and finding animal signs, and stopping to talk about what we were looking at, I don't remember ever seeing bear tracks or scat. One thing for sure was that the donkeys would bray loudly multiple times as soon as they sensed we were close to camp.

On Friday a sharp, good-looking, smiling group and four attentive donkeys moved easily as one back down the railbed and took the Wentworth Trail to the top of Mount Israel, where we stopped for a long lunch before descending to Mead Base. From here the scouts traced their week's journey and could see the peaks that awaited their feet at some future time.

I always wondered if any other camps were using pack animals during those years or after. My first observation of their presence elsewhere in the White Mountains was in August 1995 in the Wild River valley on the logging railroad bed of the Wild River Trail. An outfitter in the Gilead, Maine, area had a group of families with children and llamas. Their tent camp sat between the river and the trail some distance upriver. I was pleasantly surprised at how the soft llama hooves barely marked the trail and how hard it was to find where they foraged.

Editor's note: William Geller's article about this camp's sixth week, when they led backpacking trips to Mount Washington, appeared in Appalachia, Winter/Spring 2020.

WILLIAM GELLER, a retiree who explores in the outdoors in every season, lives in Farmington, Maine. His research and writing are available at his website Mountain Explorations, sites.google.com/a/maine.edu/mountain-explorations. "Ranger Bill" would enjoy hearing from anyone who went on a trip with him. Contact him at geller@maine.edu.

Considering the Heartache of the World

A girl whose mother never came and one whose mother did

Elissa Ely



WHERE TO BEGIN WITH THE HEARTACHE OF THE WORLD? ONE evening, I walked up Square Ledge in Pinkham Notch, which has a view of New Hampshire's Mount Washington from the top. It was near sunset: too late for a long hike, too early for dinner at the Joe Dodge Lodge. I wandered across Route 16 (which can feel more dangerous at dusk than any wilderness) toward Lost Pond. The trail splits after a pleasing bog bridge, and I headed left.

I was thinking about a conversation I'd had a few days earlier: A woman I knew only slightly had been reflecting on one of her earliest memories. It might have been a true recollection, or it might have been an embroidery; either way, the image she painted was full of loss. She was standing in her crib, holding onto the slats, crying and crying for her mother, who—as was always the case—never came.

The route up Square Ledge is a very short scramble. Its lower half meanders without pretensions or particular magic. Total elevation gain is modest, only 400 feet, but toward the top, after winding around the back of a series of boulders, the trail requires a bit of breath. Sometimes, rock climbers practice their technique up the vertical front instead. I don't know anything about rock climbing, but I thought, picking my way past them, that it looked like a lot of work to get from the lobby to the top floor.

IN HER MEMORY, THE WOMAN'S NURSERY HAD NO WINDOWS, AND THE DOOR was shut, but a toy chest stood across the floor. She could see fur ears and doll eyes peering out, and she cried for them, too: one toy, just one, to keep her company. But no one came.

When I reached Square Ledge, I found an older man, just up himself, sitting on a cluster of rocks. There was something about him—the helmet and rope, maybe—that seemed lithe, acrobatic, and highly able. A woman about half his age leaned over the front of the ledge, looking down. They were talking about dinner.

Then I noticed the pair of braids near them, and their owner, maybe around 12 or so, clattering out of a climbing harness. She tossed her helmet down, shook out her braids, and half-skipped over. She, too, was just up. I had not seen the moment of arrival on what might have been a maiden

Scrambling up the Square Ledge Trail to the clifftop ledge above Pinkham Notch, New Hampshire. CHRIS SHANE

climb, but her watchful grandfather (as I imagined him to be) and mother (as I imagined her to be) were full of first-time praise. Fabulous job! Perfectly done! Granny would want to know all about it!

Reaching into his backpack, her grandfather pulled out a baggie of something appealingly multicolored, and the three of them started into it while conducting a technical review. They agreed she had been meticulous and unafraid, cautious but forward moving; in sum, marvelous. She sat between the adults, grazing and gazing around. It was clear she had no doubt of her worth to the natural and human worlds, having arrived on top of both.

“Look at that sky!” she said all of a sudden. The three of them looked up. I did, too. Clouds were spreading over Mount Washington and Tuckerman Ravine straight ahead, the Great Gulf on one side and Mount Isolation on the other. They were taking on the start of last-light color, and their beauty was sliding into everything. Even the sky had been timed to arrive in her honor.

A minute or two later, they finished their snack, coiled the ropes, and started down the trail I had walked. She led, still half-skipping, and I wondered whether a more traditional route down might be disappointing after such energetic accomplishment up. As they passed me, the older man and I exchanged smiles, and he offered commentary in a collegial way. “Loud and full of energy she always is,” he said in a British accent. Full of love his own voice was.

That night, drifting off, I recalled the sad woman. I happen to know she spends most of her day in a group home, rolling tobacco in cigarette papers to save money. Mounted on the wall of the common room is a television set, which runs a constant stream of sitcoms and celebrity talk shows. Maybe looking at it is kind of like looking at a sky.

She is not a hiker. She will never know the satisfaction of exchanging upward work for a vista. But imagine: What if she ever found her way to Square Ledge? What if she looked up and noticed the sky—the real sky, which does not distinguish between joy and heartache but spreads over us all, the abandoned and the beloved alike? What if she felt it had arrived in her honor? If only she could see it, maybe the sky would hold her.

ELISSA ELY is a community psychiatrist and writer from Massachusetts.

Shinrin-Yoku

Velvet-fronted nuthatches,
a matched pair, hang upside down
on the guy wire stretching along
the bridge between the towers,
Belalong Canopy Walkway,

Ulu Ulu, Brunei, where five
towers rise above the forest floor.
In the breeze the bridge sways
ever so slightly. The nuthatches
make whisper songs, as they pick

the smallest ants I've ever seen
off the cables. Then the birds
fly east, up the Temburong River
where only a few researchers
and scientists are allowed to visit.

The sun floats westward, while
helmeted hornbills call far off.
We untie our picnic bag, pull out
deep-fried walking catfish, rice,
spicy beef, one hundred fifty feet

above green tree snakes and ferns.
From the canopy nearest the first
tower, golden mistletoe clumps
among the healthy leaves,
a commensalism that attracts

one of the rarest birds in Brunei,
the spectacled flowerpecker
that feeds on mistletoe berries,
seen just three times here
since first discovered in 2009.

Only one way up here, this far,
far place, beyond any village—
up eight hundred and fifty-seven
steps to the foot of the five towers.
Gibbons call, pre-dark, settling

onto their sleeping branches,
the nuthatches nestle together,
and wreathed hornbills court,
their bonding cries echoing
across the Ulu Ulu cloud forest.

*18 March 2019
Marcyn Del Clements*

MARCYN DEL CLEMENTS has been a contributor to *Appalachia* for almost 30 years. In 2013 she traveled to Borneo on a birding trip, and again in 2019, this time to explore Kinabalu National Park for its endemic species. While on the island of Borneo, she also visited the tiny nation of Brunei. This poem's title is from the Japanese, meaning "forest bathing," in essence.

Light Snow in the Whites

A close call

Rob and Bill Powers



The narrator in this piece—determined by a flip of an Old Man of the Mountain New Hampshire state quarter—is Rob Powers.

Dedicated to Aunt Abbie Fenn, who heard this story at a Thanksgiving family gathering and insisted we write it.

ON FEBRUARY 14, 1998, MY FATHER AND I ATTEMPTED OUR FIRST-EVER winter hike in the White Mountains with high hopes of reaching the summit of New Hampshire's Mount Washington via the Lion Head Winter Route. Dad and I arrived at the Eastern Mountain Sports North Conway Climbing School for our reserved 8 A.M. guided hiking program. Two large groups were gearing up ahead of us. Our start was delayed by more than an hour because some members in those groups had not yet arrived or did not have all of the required equipment. The delayed start would later come back to haunt us. The sky was clear and the air was cold—very cold. Before starting out, Chaz, our guide, checked that we had brought the gear and winter attire Eastern Mountain Sports required. We somehow managed to lift onto our backs our stuffed, oversized packs holding the vast array of recently purchased and rented equipment and accessories.

Near the beginning of the Tuckerman Ravine Trail, Chaz explained briefly how to use crampons and ice axes so we would be prepared for an unexpected slip or fall. We practiced for fifteen minutes how to hold the axe and position our body weight over the axe's head. This would exert optimal force to drive it deep into the snowpack, maximizing the effect of self-arrest. We practiced this technique three times, lying on our backs and turning onto our stomachs with our heads toward the top of a mildly pitched, snow-covered slope. The self-arrest training may have been adequate for conditions on that particular day. The two of us, though, had not come anywhere close to mastering self-arrest techniques. When the brief training was over, we headed upward toward the summit of Mount Washington.

We crested the upper Lion Head outcropping at the edge of the Alpine Garden, from which we could see the summit. It was completely clear. We stood just a mile by the trail from the top. Chaz told us we were quickly approaching the turnaround time and had no realistic chance to summit that

The summit of Mount Washington, New Hampshire. ASHLEY DANA O

day. He wanted to be sure we were able to get down safely before dark. At that time the temperature on the summit was -11 degrees Fahrenheit with sustained northwest winds blowing at 62 MPH. The windchill factor (based on the calculation method used at the time) was a bone-chilling -72 degrees F. The combination of time and brutally cold windchill temperature conspired to thwart our attempt. We were extremely disappointed but vowed to return soon. (The prospect of enjoying a post-hike turkey dinner special at Wilfred's Restaurant in Gorham before heading home made the descent from our failed summit attempt not so bad after all.)

Just one month later, at 8 A.M. on March 14, 1998, we signed in at Pinkham Notch Visitor Center to try again for the summit. We were on our own, without the benefit of an experienced guide. Since we were members of the Mount Washington Observatory—located at the summit—we had notified the observatory staff of our hiking plans and of our intention to stop by and say hello once we reached the summit. Optimistic, our spirits were buoyed by the nonthreatening local forecast calling for “light snow and moderate winds.”

We started out on the Tuckerman Ravine Trail headed for the Lion Head Winter Route. Snowflakes sifted from the sky. We quickly got into a steady hiking rhythm with a slight breeze at our backs. We cruised up the initial wooded and sheltered sections of the trail.

We reached the steep, ice-covered L-shaped chute that is the crux of the Lion Head Winter Route. With ice axes at the ready, we dug our crampons into the icy surface and made our way up the chute without incident.

As we continued to climb, the snow became steadier and heavier, while the wind gradually ramped up. By the time we reached treeline, visibility was a problem compounded by the unanticipated difficulty of our goggles intermittently fogging and icing up.

We stopped for a brief moment on the trail at the base of the summit cone—not far from the upper edge of the Alpine Garden. There was a rock formation containing a short, narrow trail passage between two vertical walls of stone. We stopped and turned around to look down for a minute. My dad suggested that we identify a marker that could help us find our way back through here, on our descent. The only visible marker was a little blue ribbon tied atop one of the many small bushes dotting the Alpine Garden landscape. We took our bearings. Dad said, “Looking straight out from this narrow passageway, that blue ribbon is slightly off to the left,” extending his arm like a needle on a compass. I concurred and replied, “That’s gonna be tricky to find on the way down.”

We pressed on through what was becoming near whiteout conditions with swirling snow all around us. At times, we struggled to find signs of the trail, but we always managed. We wondered if this heavy snow falling was a passing snow squall. We decided to continue toward the summit.

By the time we reached the summit proper, the air temperature was 9 degrees F with a wind speed of 50 MPH, resulting in a windchill factor of -40 degrees F. In the flying snow, visibility had dwindled to a few feet. The summit area seemed completely foreign even though we had explored it during two hikes the previous summer. Eventually we stumbled upon a small building with dimly lit windows and began pounding on a heavy wooden door. After a few long minutes, we were elated to see someone opening the door. The man looked astonished that we were standing there in such abominable conditions. He told us that the main summit building—the Sherman Adams Visitor Center—was just ahead, even though it was not visible. We had been pounding at the door of the TV broadcast building.

We came upon the correct summit building. Although the observatory staff knew that we had planned to come, they seemed shocked to see us standing there, snow- and ice-encrusted. The public area of the building, which includes a cafeteria and souvenir shop, was dark, deserted, and bitterly cold in the midst of its off-season hibernation. Here we removed outer layers, crampons, and plastic boot shells before proceeding into the cozy confines of the observatory section of the building. The staff immediately implored us to rest briefly and quickly head back down the mountain. They explained that the weather was deteriorating rapidly as a result of an intensifying storm. We did not talk with the staff about waiting out the storm in the observatory. We gobbled down our lunch, used the facilities, and prepared for a quick departure.

Returning to the unheated, bitterly cold public area of the building, we geared up. Our hands went numb during the brief moment we took off our gloves to attach our crampons. We stepped out into the furious and unrelenting storm.

FOR MOST OF OUR ASCENT, THE WIND HAD BEEN AT OUR BACKS. NOW, AS WE readied ourselves for the descent from the summit, we were facing directly into a whiteout. The wind was ferocious and intensely cold.

As best we could, we retraced our quickly vanishing footprints down the snow-covered wooden stairs from the summit proper toward the large Tuckerman Ravine Trail sign. We started our slow descent. Our goggles were now

even more problematic than during the ascent. They frequently fogged up and iced over, blinding us. We had to stop repeatedly to remove and clear our goggles. We would then take a few more steps. Each time we paused to fix the goggles, areas of our faces were being exposed to wind-blown snow, which was painfully stinging and battering our skin. To counteract the elements, we alternately shielded each other from the wind to clear our goggles—which offered only temporary improvement.



Bill Powers, left, and Rob Powers pause during their first winter attempt on Mount Washington, on February 14, 1998. COURTESY OF THE POWERS FAMILY

As the wind roared, I holler to Dad, “We have to find the trail sign for Lion Head. It should be somewhere up ahead on our left, if we haven’t already passed it.” It was imperative we find this trail junction—a 90-degree, left turn off of the Tuckerman Ravine Trail. A short time later my dad turned around and yelled, “I think we found it—there it is!”

Now we remembered to implement our navigational strategy to locate that little blue ribbon we’d seen on the way up. It seemed like searching for a needle in a haystack. No longer could cairns be distinguished from rocks as we walked among them. A lot of falling and blowing snow had accumulated here since we had last passed by. We made our way along what we believed to be the trail. There was the familiar rock formation and its narrow passage! Dad positioned his arm as he had before, in the direction of where the little blue ribbon ought to be, and said, “I think it’s that way.” We could not see the Alpine Garden or the trail.

We blindly started down, heading slightly to the left in search of the blue ribbon. Shortly after, Dad yelled above the gale, “I think we’re going too far left. Should we go more to the right?” I answered, “Yes, but we need to be careful—if we go too far right we’ll end up falling into Tuckerman Ravine.” We went ahead and modified our course, heading slightly to the right until my growing concern about that potential fall made me say, “Hey Dad, let’s start moving more to the left,” which we did. The dilemma, forcing our meandering path through the snow, had become the awareness and proximity of the invisible, steep drop into Tuckerman Ravine not far from us, versus heading too far the other way and aimlessly wandering through the Alpine Garden in search of the trail and blue ribbon.

Now the grade started to level off. This must be the leading edge of the Alpine Garden. We were standing precisely at that little blue ribbon tied atop that small, scraggly bush. Dad exclaimed, “I can’t believe this! We found it!”

I said, “I don’t know how we did it. Must be beginner’s luck.”

We were grateful and relieved to once again be on the trail. Even with heavy snow continuing to fall, we easily traversed the gentle slope of the Alpine Garden toward the rocky outcroppings of Lion Head. With each step we increasingly separated ourselves from the inhospitable summit. We made steady progress in the diminishing winds toward the relative shelter of the still distant treeline.

As we came to the far edge of the Alpine Garden, we were startled to see a ghostly, fast-moving figure approaching. The time was nearing mid-afternoon, and we had certainly not been expecting to see any other hikers

out in these conditions. It was a young man. He was lightly dressed, carrying a small pack, and hiking without crampons, an ice axe, or any companions. He asked, "How much farther away is the summit? What are the conditions like up there?" I told him, "The conditions are not good and getting worse." I asked, "Have you ever been up there before?" He replied, "No." He explained he had initially been hiking with a group of friends, but they had decided to turn back earlier. He opted to press on alone. He asked, "If you run into my friends on the way down or at the bottom, let them know you saw me. And tell them I was still heading to the summit." My dad reiterated, "The conditions get worse the higher up you go." He thanked us. We wished him luck. We parted ways and continued on in our respective directions.

Now we reached the top of the L-shaped chute we had easily gotten up a few hours earlier. The icy surface our crampons had bitten into before was now hidden beneath several inches of newly fallen snow. Upon the very first step into the chute, each of us slipped unexpectedly and quickly flew down the icy channel. The thick added snow layer prevented the points of the crampons from ever reaching through to the ice—providing us no traction at all. Our instinctive reaction to the sudden acceleration was that our arms flew up and our hands flew open, thus releasing our grip on the ice axes that were meant to arrest our slides.

The previous month's training session on self-arrest techniques seemed to have slipped away as well. Clearly, we were not prepared to handle this type of situation—lacking adequate practice and preparation to master techniques for a slide such as this. Fortunately, we both managed to slow our rapid descent by frantically reaching for and grabbing hold of branches flanking the chute. Neither of us suffered any significant injuries during the unnerving, heart-racing slide.

Soon after leaving the chute, and hiking a short distance across easy grades, we rejoined the wooded section of the Tuckerman Ravine Trail for the final—and thankfully uneventful—conclusion to our adventure. Here we took a short break among the trees, protected from the harsh elements we had left behind. Only the whispering flutter of steadily falling snowflakes broke the silence, as we watched them tumble from the sky. It was a welcomed, precious, and rewarding experience after a challenging and remarkable journey. We then walked the last mile-and-a-half back down to the visitor center.

We emerged from the woods into the parking lot to discover 14 inches of snow had fallen that day and wondered aloud, "Is this what they mean when the forecast calls for 'light snow' in the Whites?"

WE FAILED TO RECOGNIZE THE SEVERITY OF THE CHANGING WEATHER conditions. We had placed all our faith in that morning's forecast calling for "light snow." We now know that our limited winter hiking experience in the White Mountains and our lack of sufficient training failed to prepare us for winter conditions in the Presidential Range. Our basic introductory training had consisted of a single guided winter hike partway up the flanks of Mount Washington. We were naïve. We had a misguided sense of bravado. Mistakenly, even foolishly, we thought we could handle whatever the mountain held in store for us. We learned firsthand the extent to which weather in the Whites can be unpredictable, brutal, and potentially life-threatening. It is a sobering thought that during the hike neither of us truly appreciated the actual danger we were in.

We are thankful to whoever tied that blue ribbon on top of that bush. And that we thought to take notice of our surroundings at that spot. Doing that helped to guide our way through a storm. We got off the mountain safely that day. Simply put, we were extraordinarily lucky.

BILL POWERS and his son, ROB POWERS, have hiked frequently in the U.S. Northeast, South, and West. Rob lives in Southington, Connecticut. In March 2019 he completed the Appalachian Mountain Club's New Hampshire Winter 4,000-Footers. Bill lives in Windham, Connecticut, and now spends more time in kayaks than on mountains. The authors thank Peter Crane and Tom Padham of the Mount Washington Observatory for providing weather records.

Waterman Fund Essay Contest Winner

Splitting Clouds at the Edge of the World

How had I never noticed it before?

Jason Mazurowski



I WAS CLEANING OUT THE FRENCH PRESS TO BREW A MIDMORNING ROUND when I fixed my eyes on a Pleistocene relic. That familiar silhouette seemed to stare back at me from across the lake and through the trees, pure white against a rare blue sky. I lost sight of it, though, when the kettle squawked, and I turned to pull it from the stove top. Did I actually see what I thought I saw? I ran to grab a pair of binoculars.

At the kitchen window I leaned and contorted, peering out over the rooftops of Burlington's Old North End, hoping to catch another glimpse of that ancient tower of anorthosite. Scanning the skyline through a sea of naked branches, gutters, chimneys, and box elder buds, I pieced together the mountaintops, one by one, like a far-off jigsaw puzzle. I could make out the Dix Range, Rocky Peak, and Giant Mountain down to the south—right there above the compost pile—and Whiteface way up north, just to the left of the neighbor's garage. Then finally, somewhere in the middle of it all, suspended in the crook of a red maple branch: the cloudsplitter itself.*

Though less distinct than its counterparts to the east—Mansfield, Washington, and Katahdin—and more subdued than the jagged, glacier-strewn peaks way out West, Mount Marcy's summit has an alluring quality in its peculiar ability to remain hidden, so often obscured by a veil of clouds and buttressed by lesser peaks and ridges. But it will catch you off guard from time to time. While clambering over a ridgetop or rounding a bend in the road, you'll look up to see that snow-covered dome peeking out above evergreen spires.

I'd lived in that apartment for nearly two years. How hadn't I noticed before? How had an icon of wilderness, on display right outside my window, escaped my gaze for so long? Until recently, my time spent in this kitchen had been somewhat fleeting: hastily assembling a breakfast burrito before rushing off to teach or chopping garlic in the evenings with the blinds pulled down. But by the spring of 2020, it was my window to the world.

Just weeks before, on the other side of the planet, a bundle of nucleotides bound by protein that had been bouncing around inside of a bat or a pangolin or perhaps myriad other mammalian hosts embarked on a transcontinental journey. It mutated and replicated through marketplaces, cruise ships, and

Mount Marcy, the highest point in New York, suspended in the trees. ANNE LABASTILLE/
NATIONAL ARCHIVES

* Marcy is also known as Tahawus, a Native American name meaning "Cloudsplitter."

concert halls, defying international borders, and toppling global economies before eventually finding its way into my lungs. A feat of biology in its own right.

But I was young, healthy, and content to stay put in the waning days of winter. Besides, there were no classes to be taught, no meetings to rush off to, and no bars to rest an elbow on. The days were short, the streets were empty, and the trails clogged with ice and mud. With daily obligations on hold, my mornings now consisted of hours of observation and reflection. Suddenly I had time for a second or third cup of coffee while watching the neighborhood wildlife begin to stir. I'd check in from time to time with the robins as they built their nest under the eaves. I'd cheer on the bumblebee queens as they scanned the woodpile for a suitable spot to start a colony, and I kept my eyes and ears alert for the first signs of warblers.

As weeks passed by, long-dormant buds began to break, and red maple flowers encroached on my view of the mountain. Beneath my feet, starches and sugars—stockpiled sunbeams of bygone days—were drawn from the roots and back to the treetops, driven by the freeze and thaw of winter's final gasp. Soon, my view would be obscured altogether, and the world would be green again.

In the hours spent tethered to that kitchen, with the human world in suspended animation, I toiled away like a mad scientist: experimenting and fermenting, wielding the principles of ecology and microbiology at



Jason Mazurowski in August 2020 surveying bees. JOSH BROWN

my fingertips. Mason jars of sourdough starter, beer, kraut, kimchi, pickled ramps, and fiddleheads spilled out across the countertops. When all that wasn't enough, I brought the experiments into the yard. I collected as many seeds as I could from pockets of urban wilds, tossing milkweed pods onto bare patches of soil, and punching willow twigs into the ground. I built bumblebee houses and mason bee boxes and hammered mushroom spawn into fresh-cut logs in a crazed frenzy to rewild my corner of the world.

BY MAY, THAT FAMILIAR HUM OF INSECTS HAD RETURNED. OUT THE WINDOW, I watched the microbial wonders of the compost bin; the botanical miracles of the garden; and the bees, wasps, and caterpillars going about their business, restarting nature's economy. I learned the routines of the opossums, raccoons, jays, and the rest of my regular visitors. All along, I found comfort in knowing that out there above it all, beyond the canopy, there stood a wild, geological wonder watching over my rogue ecology.

The heat came on strong, the snow melted fast, and our country had started to buckle under the stress of it all. Maybe it was the humidity, or the helplessness, or all those hours of impromptu reflection, but by the time summer arrived in earnest, everyone was grappling with demons against a backdrop of political chaos. Forays out the front door became more intentional by necessity, and what were once instinctual, ad hoc trips into the backcountry now required greater thought and planning.

My favorite haunts had been discovered by a whole new cohort of adventurers escaping the home office to exercise their newfound freedom (as they should). So, I shirked those beloved, crowded trails and lit out for more remote, overgrown tangles. I scrambled and bushwhacked through bogs and across red pine ridges, and I plunged into the loneliest swimming holes I could find. Yet still, every night and every morning the backyard beckoned from the window, the hum of katydids and crickets holding my attention and connecting me to the natural world.

One August evening, a cool breeze ushered in a welcome reprieve from the heat of the Champlain Valley, and I thought I'd go out and have a fire. A clap of thunder rang out in the distance, and a few raindrops fell on my neck. When I looked up, I noticed that the sky had turned turquoise. The wind whipped up, and as hail started to fall, I ran inside to take cover. While racing to shut the windows, my phone started buzzing and blaring with warnings of imminent weather. When the power cut out, I could hear branches cracking and slapping against the rooftop. I yelled to my partner to run to

the basement. On our sprint down the stairs, the last thing I saw was a red maple snapping in half, toppling two other trees like dominoes. It bounced off of the garage and rolled across the garden before coming to rest on the firepit.

The squall lasted only minutes, but it ripped up trees all over town. As the clouds cleared, I peered out the window to survey the destruction. Our chain-link fence had been crushed, but I could see no other structural damage. The storm had blown in from the north, bringing a crispness to the air for the first time in months. As I watched the squirrels inspect the trees, puzzled by their new orientation, something caught my eye way off in the sunset. Through a gap in the mangled branches, and in between the leaves already tinged with autumn red, I saw the summit of Marcy—exactly where I expected.

Upon seeing the mountain again, out there across the lake, I had that same feeling in my gut that I just can't shake when glimpsing the alpine summits of the East—like looking back in time at our glacial past, transported to the tundra of 10,000 years ago. Maybe that's how an astronomer feels looking up at the Milky Way, gazing out at our galaxy's history written in light and radio waves as they make their way across the universe. But there is one crucial difference in the context of mountains. We're not restricted to merely admiring from a distance; we can *go* there. We can visit that scoured landscape where the wind howls and the ravens croak and cartwheel. If only temporarily, we can exist in that world where the air smells like balsam fir and Labrador tea, and we can stand upon rock more than a billion years old—ancient beyond ancient—primordial, metamorphosed magma, thrust into the sky, splitting the clouds.

By the time the sun came up the next morning I was already on a ferry, Adirondack-bound, cutting through the swirling fog of autumn's first chill on the lake. By noon, I had left the hemlocks and hardwoods far below, cruising through the spruces with a grin on my face that must've stretched from ear to ear. As I cleared the krummholz I emerged into an eerie calm, and I realized I'd achieved something unthinkable. Traveling fast and light with an early start, a mission on my mind, and a well-timed weekday outing, I had somehow been granted solitude on the summit of Marcy.

I sat there alone, in disbelief, cross-legged and unmasked. Out across the lake I could see the Green Mountains and all of my favorite ridges and hollows. I looked down at Burlington, tucked inconspicuously into the bay. Somewhere out there was my drafty old apartment, the toppled trees, the haphazardly planted garden, and the tiny kitchen with the broken stove

where we had been holed up for the last six months, and I was grateful for all of it.

Looking out at the rest of the world, everything seemed calm, clear, and pristine despite incomprehensible suffering in every direction. From up here on my privileged perch, I was blind to all of it. Suddenly, my ignorance had been laid bare, and my initial delight at the absence of others gradually turned into loneliness. In the stillness of that place, juxtaposed against the chaos of the world, I started to sob.

I cried for my family and for my friends, not knowing when I'd see them again. For everyone out there with more courage than me being beaten and tear-gassed in the streets. For the thousands of people hooked up to ventilators, alone and scared. For anyone who had been choked out by floods and wildfires, bearing the brunt of our imminent ecological catastrophes.

My gaze shifted to the summit plaque, the only human object in sight, and it suddenly seemed so out of place. Even here, in one of the wildest places imaginable, evidence of suffering had been right there in front of me. I thought about the people who stared out at these mountains long before any of us, and perhaps for the first time I didn't attempt to slip their history of heartbreak conveniently to the back of my mind, but instead I leaned into the discomfort, trying to imagine it. How could I possibly know what it felt like to see an entire world ripped away? To have the names of the lakes and mountains replaced, and appropriated only where convenient? I could never know; I could never truly understand. The best I could do was to try, and to finally admit my own ignorance.

NATURE CRASHES THROUGH BARRIERS. FALLING TREES HAVE NO RESPECT FOR property lines, and viruses won't bend to ideology, but every disaster eventually gives way to clarity, if only in hindsight. In ecology, we refer to these times of tumult as *stochastic events*. In a forest, the fastest growth, the greatest diversity, and the most novel innovations occur immediately following a disturbance. In the wake of windthrow or wildfire, there's a blank canvas for a whole new forest.

So where do we go from here? What will become of this seemingly endless, global stochasticity? Most will view 2020 as a year of loss—rightly so—but next comes regeneration, and maybe new growth will fill in the gaps in ways we could never imagine. There's potential for a young forest to emerge, full of diversity, growth, and innovation. If not for the lockdowns of early spring, or the violent storm I witnessed in August, I might never have been captivated

by the intricate relationships around me. I may never have discovered all those opalescent swimming holes, and those patches of endless blueberries. I may never have climbed this beckoning mountain to inadvertently confront my own privilege. I may never have noticed the mountain out the window at all. But why does any of that matter?

I used to quantify wildness as a function of remoteness, measured in miles from the nearest road or trailhead. But the laws of nature don't stop at the edge of a wilderness boundary. They apply to our farms and towns and cities whether we want them to or not. I cringe whenever I hear that overused adage of the modern naturalist, urging us to "discover what's in our own backyard." Perhaps a better, more accurate statement: Embrace the wildness that spills out onto your doorstep.

Still, there's no substitute for that rarefied air of a lonely ridgetop, and it's hard to imagine two environments more dissimilar than an urban backyard and a wild, alpine summit. But somehow seeing them together that spring, framed by the same window, made it all seem so continuous, uninterrupted, and unbroken. For most of 2020, my world had been constrained by four walls and that chain-link fence, but now wildness was within reach, ever-present, as if it extended from my window all the way to the highest, wildest peaks of the Northeast, to the heart of wilderness itself—out there at the edge of the world.

JASON MAZUROWSKI is an ecologist, naturalist, and adjunct instructor at the University of Vermont. He earned a master of science degree from the university's Field Naturalist Program, and he is a former Appalachian Mountain Club hut crew member. He studies Vermont's native bees and teaches courses in field ecology and pollinator conservation.

Editor's note: Since 2008, Appalachia and the Waterman Fund have partnered to sponsor an annual essay contest for emerging writers. The fund provides generous prize money and works with the journal to choose winners. In 2017, winning and notable essays from this contest appeared in New Wilderness Voices (University Press of New England). For details about how to enter next year's contest, see watermanfund.org.

Alpine Garden

a plateau on Mount Washington

Wind ripples through rock
studded grasses, tousles my hair, drives
dirigible cumulous across a blue sea.

The massive summit cone of broken talus
looms on one side; craggy, muscular ravines,
a horizon of peaks and ridges on the other.

Exposed in a gray, bouldery vastness,
breathless from climbing, chilled by sweat,
I brave sunlight that stings my eyes, sears

my neck as I hopscotch rocks, pockets
of frilly Lapland rosebay blossoms.
Afoot where life feels thin, I spot

fallen stars of *diapensia* flourishing
in a green firmament, moss campion
firing pink in sheltered nooks.

Ambushed by drying wind, baked in sun,
squeezed in frozen ground half the year,
frail blossoms thrive where I'm a tourist.

Bent low, I sniff alpine azaleas
where boot-soles can kill, and missteps
at the edge have a long afterlife.

David K. Leff

DAVID K. LEFF is an award-winning essayist and poet and former deputy commissioner of the Connecticut Department of Environmental Protection. He is the author of six nonfiction books, three volumes of poetry, and two novels in verse. He served as poet-in-residence for the New England National Scenic Trail (NET) for 2016–2017. He is poetry editor of *Connecticut Woodlands*, the quarterly magazine of the Connecticut Forest and Park Association.

The Tourists

Having no memory or relationships in a landscape, they make dangerous mistakes

Hilary Smith



THE TOURISTS START COMING IN MID-MARCH WHEN THE RIVER IS STILL too high to swim. They spread out their towels on the rocks and sunbathe, let their dogs splash around the shallow pools, leave the first of the toilet paper flowers on the side of the packed dirt trail. They admire the wildflowers and the swirling emerald water. They build cairns of river stones and take photos of them. The sun leaves the canyon by midafternoon and the tourists leave too. Then I hike down the hill and push the cairns over, scattering the stones again, flinging them back into place.

By mid-April, the trickle of tourists has turned into a swarm. The little parking lot is full now, Subarus and Priuses squeezing into any semi-viable space, and the swimming hole that was known only to locals just a few years ago is receiving the first of thousands of Instagram snaps it will receive this summer alone. The cairns proliferate; I knock them down. Campfire rings appear; I feel a knot in the pit of my stomach. The tourists were not here last year, when a spark from a tourist's campfire started a fire that raced up the hillside a couple miles beyond where I'm standing now. My neighbors were evacuated with their two babies, the roof of their hand-built cabin sprayed with bright red flame retardant. The trees on the hillside are still charred black; in the fall I went hunting for morels on the burned ground, unsuccessfully.

But the tourists keep on building campfires because the tourists have no memory. They have no memory and no relationships; they don't know Aubrey and Michael and their two babies, or Ralph and Nancy up the road. They don't know the pine needles that catch fire in a flash or the dry grasses that are already practically burning in their dryness. Having no memory and no relationships makes the tourists dangerous. They make mistakes that nobody with memory or relationships would ever make. Since we have lived on the river canyon, I have learned to be more afraid of tourists than I am of bears.

They are curious beings, the tourists. They are reckless where they ought to be cautious, diving into swimming holes whose boulders have shifted since the previous summer's Google reviews declared them safe, and lighting the aforementioned campfires in red flag conditions. And they are cautious where they ought to be adventurous, avoiding eye contact with locals who could enrich their experience of the river with tales and advice, and neglecting to taste the wild blackberries whose vines clamber over the warm river rocks. They bring battery-powered speakers to broadcast tinny music over the sound

The western river that attracts tourists in the internet age. HILARY SMITH

of the waterfall and set up yoga mats on top of mugwort patches the Nisenan Tribe planted to keep ghosts away. The tourists offend not through malice but through ignorance: They just don't know how to *be* in this place, and they don't seem particularly interested in finding out.

The tourists smirked at me once when I asked them not to park their car in a fire lane. This narrow bridge, I explained, is the sole evacuation route for the small rural community that lives up the hill. In the increasingly likely case of a wildfire, I told them, *your car* will be the thing blocking my neighbors from escaping the flames. In the case of a child drowning in the river, I continued, *your car* will be the thing slowing emergency responders from giving cardiopulmonary resuscitation. Their smiles grew more and more bemused the more I tried to help them understand. "Thank you," they crooned when I finally walked away. Then they continued on to the river, leaving their car in the fire lane, where three or four other vehicles were already parked. Why should they be the ones to give up their spot, when everybody else was doing it? Or at least, everybody with no concept of the smoke and terror, everybody without an elderly uncle living on that hill, everybody who had never gotten stuck behind a traffic jam of tourists on the bridge while trying to drive a neighbor to the emergency room in town, twelve miles away, everybody, in short, with no memory and no relationships.

The tourists would like me to take their photograph and would be happy to take my photograph too. They seem confused when I tell them I don't need a photograph; I live here. "Like, *here* here?" they say, looking around at the steep wooded slopes. "I thought nobody lived here." They think they are in a wilderness. They have driven up from San Francisco, Berkeley, Sacramento, Vacaville, to visit the wilderness. They seem baffled to discover that the vast wilderness they imagine is actually a narrow strip of river canyon that local people fought for 40 years to protect. Outside the narrow strip are highways, gold mines, timber company lands, agriculture. The tourists request that I take the photograph in such a way that you can't see any other tourists in the background. With a little effort, I comply.

The tourists panicked once when they saw me coming down the trail in my National Park Service jacket. They grabbed their dog, which was off-leash, and smiled at me ingratiatingly. "Hello, Officer," said a member of their party. "It is just so beautiful here, oh my gosh." It took me a moment to realize they had mistaken me for a park ranger. I hesitated, trying to decide whether to let them know I'd found the jacket in a dumpster, or take advantage of the mistaken identity. Why did I need a government job title to legitimize my

activities at the river? I picked up trash, broke up campfire rings, put up No Campfires signs, tried to convince tourists to move their cars out of the fire lane—yet, if the tourists found out I was a local resident, and not a ranger, they would ignore me if I asked them to pick up the pile of still-warm dog waste I could see on the side of the trail a few feet behind them. I decided to enjoy the unexpected power, even if it was ill-gotten. “The fine for off-leash dogs is a hundred and fifty dollars,” I said. “But I’ll let it go this time if you pick up your dog’s mess.”



Wildflowers bloom high above the river. HILARY SMITH

After that, I start wearing the National Park Service jacket all the time. It's a really old jacket, and I wear it with Carhartt pants and a straw hat, but the tourists don't seem to know what a real ranger is supposed to look like, and I'm happy to let them think whatever they like. The outfit makes me bold. I walk right up to a campsite someone has set up on the river and start dismantling their campfire ring, flinging the stones into the river, splashing water onto the still-glowing logs. A tourist in blue swim trunks watches me from the swimming hole. As soon as I'm gone, he scrambles out of the water and begins to break down his tent. I climb up past the waterfall to watch him go.

My neighbors remember how it was before the tourists. They would take their babies to the river and swim and enjoy the greenness and the warmth of the rocks. The trail was faint, not this eroded gash through the side of the hill. They would stay by the river all day, talking to the people they knew, enjoying the company of the trees and plants and boulders they'd known year after year. Then came the newspaper articles and the blog posts—"Top Ten Swimming Holes," "Best-Kept Secrets"—and the tourists started to come in droves, coming to see the wilderness, the idyll.

I print more No Campfires signs to put up at the river. Then I make some No Parking—Fire Lane signs for the road. I try to make the signs look friendly. I add a heart graphic so the tourists know I am asking with love. I add helpful explanations in smaller font: "Last year a wildfire started from a tourist's campfire and nearly burned down this entire canyon. Please protect this special place!" I laminate the signs and tie one to the big madrone at the swimming hole, one to a telephone pole near the bridge, a couple more to signposts in the parking lot. As I walk around putting the signs up, I can't stop noticing the beetle-killed pines, the dry grass, the campfire rings I haven't broken up yet. Maybe I should make a new sign with a picture of a campfire, an arrow, and a picture of a burning river canyon. Would the tourists understand the concept then?

I've stopped going to the river for pleasure. Now, I only go there to patrol. I bring gloves, a flashlight, a bag for recycling and trash. I want to enjoy the river, but it's like trying to enjoy a doughnut that's being devoured by ants. The tourists have no memory and no relationships. I have too much of both, and it's killing me. Maybe I should ask them to take a photo of me, one with no tourists in the background. Maybe then I would delight in this place as uncomplicatedly as the tourists do.

I write to the county and ask them to put up better No Parking signs at the fire lanes. I call the police and report the illegally parked cars. I stand on

the hillside and wave a light at the tourists having a campfire on the riverbank. I flash the light on and off in what I hope is a menacing way.

The tourists are having a campout on their way home from a music festival. They park their buses and vans at the trailhead and leave little plastic unicorns in the forest, along the trail, to show their friends how to find them. They wear tutus and leopard print and laugh as they pick their way down the canyon, to the bend in the river where the bank is wide and flat enough to pitch tents. As the first stars come out they set up a sound system and play electronic music, take photos of each other, and dance.

The tourists will have great memories of this night. They will remember the bliss they felt by the river, the smiles of their friends in the moonlight. They will scroll through the photos on Facebook and Instagram, photos that make it look as if they are all alone in a beautiful canyon with no edge or boundary and no consequences. My memories of the river will be of a dull ache, a brokenheartedness that makes me duck my head lest anyone should see. I will remember shuffling along in my National Park Service jacket, tugging cigarette butts out from between the rocks, the sound of my voice friendly and strained as I try to explain about fires, about drowning, about so many aspects of life the tourists don't seem to know.

In the morning I hike down the river and knock the cairns down. I collect plastic unicorns from the sweet-smelling duff. In the parking lot, the tourists are getting ready to leave. It is September now, and with school starting and the weather turning colder the flow of tourists will soon be slowing down. I stand there in my National Park Service jacket and watch them drive away. Soon, the rains will come, and for the next few months I'll be able to imagine that I live in a wilderness. I'll pick my way along the riverbank, alone and at peace, tidying up the tourists' beer cans and cigarette butts at my leisure. I'll sit by the swimming hole, my view unobstructed, and watch yellow oak leaves drift down from the trees. I'll mull over my relationships and my memories and make endless, futile plans for the next year's batch of No Campfires signs and fire lane interventions. "Protect what you love," I'll write on the signs. Then I'll tie one onto the big madrone, pat its smooth red bark, and walk away.

HILARY SMITH's writing explores the ways in which humans try to cope in an increasingly inhumane world. She lives on Hawaii Island. This essay was the runner-up in our 2020 Waterman Fund Essay Contest.

Letters

Motivation via the Hancocks story

I enjoyed reading Douglass Teschner's article, "The Hancock Loop Trail, Then and Now" (Winter/Spring 2021). I had enjoyed Mr. Teschner's presentation at the Appalachian Mountain Club's Worcester Chapter meeting a few years ago.

I grew up in Worcester and my primary outdoor activity was jogging around Elm Park. I'm 54 now and only got into hiking and the White Mountains a few years ago.

Just wanted to let you know that Mr. Teschner's presentation at the Worcester meeting and his following piece in *Appalachia* have motivated me to keep involved with AMC and hiking, even during these challenging times of pandemic.

In his presentation and in his article, Mr. Teschner mentioned specific individuals who had introduced him in the 1960s to the world of hiking and the White Mountains. I think it's important to acknowledge individuals like this. Not only because it's good to show that appreciation, but also because it implicitly reminds us that we all have a responsibility to help each other—especially intergenerationally.

—Matt Reidy, Worcester, Massachusetts

The Tetons in 1952

Steven Jarvis's article about his youthful adventures in the Tetons brought back wonderful memories of my own single climb in 1952.

My sister Virginia (age 20) and I (18) worked as cabin maids at Old Faithful Lodge in Yellowstone for the summer of 1952. On one of my days off, I got a ride south with the parents of a friend and saw the Tetons for the first time. On the spot, I vowed to climb the Grand one day, not knowing if it had ever been climbed or how difficult it was. A few days later, we learned from a group of young men hitchhiking around the West that it was possible to climb Grand Teton. They had done it, and they explained how to go about it. Virginia and I, along with four young men—fellow savages, as summer workers were known—joined forces to give it a try. One of our number had a car, which made the logistics work.

On August 6, after an early drive from Yellowstone, we started up the Grand. We were so lucky! Willi Unsoeld was our guide, with Doc Lee along to assist. What wonderful, steady, encouraging leaders they were. During the technical part, my sister was on the first rope right behind Unsoeld (then called Bill), and I was second to Doc on the other rope. I think Unsoeld arranged the ropes that way because he thought we two would be the weak links. In any event, it was a glorious climb. We made the top by the Exum Route in four hours. According to Unsoeld, that was the fastest time to date for a party that included women. We had to hurry down for the drive back to Yellowstone, to sleep a little before reporting to work the next day. My body was covered with bruises, but my head was full of that wonderful climb. I still have my Certificate of Ascent signed by Bill Unsoeld and a few photographs that show him with a beard, even in 1952.

I kept coming back to the Tetons to hike all that summer and the next, but I did no more climbs. Nevertheless, Steven Jervis and I may have crossed paths somewhere in the wilderness in those years.

—*Susan Davis Wiltshire, Gainesville, Florida*

Dogs

I enjoyed and appreciated Sally Manikian's article in Winter/Spring 2021 ("Eight Weeks on Scudder"). I have a problem with that picture of her unleashed dog on a mountainside trail. I understand that Sally is a "dog person" and I am not, having been bitten by a dog when I was a child.

I have been on many trails in New England, and unleashed dogs have bounded up to me and my family while their owner is far behind. You may think that your dog is friendly and won't harm me, but I am frightened when your dog jumps on me, slobbers on my clothes, sniffs at my shoes, barks at me, or accosts my children. For me, personally, it's terrifying when these unleashed dogs get close to me and I believe that it's the owner's responsibility to have them under complete control at all times, and that means having their animal on a leash. Calling out, "Come back," to your dog when it runs toward me is not an acceptable alternative because, I can tell you from personal experience, their dogs often don't obey this command.

—*Ronald A. Zlotoff, M.D., Woodbridge, Connecticut*

Editor's note: We agree with you that dog owners must control their dogs. The scenario of dogs you describe does not match advice Sally Manikian has given on

an Appalachian Mountain Club educational video about dogs. She carries a leash at all times and leashes her dogs when she encounters other people on trails. The photo we published with her article showed her dog Speck on a trail up a local mountain in Shelburne, New Hampshire, with no other people nearby. Another of our regular contributors, Lisa Ballard, gives similar advice in a 2013 article for our member magazine, AMC Outdoors: "Give dog-less hikers the right of way. When you meet others on the trail, put your dog on a leash, step out of the way, and command your dog to sit until the other hikers have passed." AMC's video featuring Manikian, Hiking with Dogs: The Ten Essentials, is on AMC's YouTube channel in the How-to: Skills for the Outdoors section. Ballard's article is at outdoors.org/bestfriend.

Of all the things we love about dogs, surely it is their loyalty to us that is most endearing and, frankly, remarkable. Forever loyal, they will follow us to the ends of the earth, but that does not mean we should take them there. Indeed, it is a violation of that trust to do so, if that means putting them in danger. Which is exactly what Amanda K. Jaros describes in her story, "The Edge" (Summer/Fall 2021).

Amanda, hiking alone with her dog, comes to a rock wall she must descend to finish her hike. She eventually coerces the dog to make the jump by pulling on her leash and dragging her down the wall.

The adventure ends well, but it might not have. What if Gaia broke her legs and had to be rescued? I can say from experience that dog stories do not always end so well. Twenty years ago, one gorgeous August day, our dog Skippy fell to his death at Crystal Cascade at the start of my daughter's and my hike up Mount Washington. We did not see it happen but surmise he found loose rock or perhaps misjudged. We will never know.

—Steve Bien, Jay, Maine

Editor's note: As Jaros descends Cornell Crack on the side of Cornell Mountain in the Catskills, she realizes that her backpacking days with Gaia will end with this trip. We believe Jaros acted responsibly. We are so sorry that you lost your dog, and we appreciate your important point that dogs don't necessarily belong in some places their owners go.

Returning the Gift

All summer, I have been feeding a raven
who comes to the river asking for salmon.

For weeks, we talk of the origin of things
while I cut fish to dry in the sun.

Months later, when geese fly overhead
in long, slow arrows, I am lost moose hunting.

When night falls upon its dark knees and the moon
is a fingernail at the rim of the world,

I listen to tight-stringed wind
from inside my fluttering tent, and by morning,

in a shudder, the world is wintered.
Quietly, through the gray wolf of the north

I watch the raven arrive to lead me from the forest,
tree by tree, until I am home and we speak for the last time.

Tsin'aen, Saghani Ggaay. Tsin'aen.
"Thank you, Great Raven. Thank you."

As he flies toward far ochre mountains,
I can hear him singing and singing.

John Smelcer

JOHN SMELCER'S 50 books include his poetry book *Indian Giver* (Leapfrog, 2016) and *The Raven and the Totem* (Leapfrog Press, 2019). He is the last living member of the Ahtna tribe of Alaska who can read, write, and speak in their severely endangered language.

Accidents

*Analysis from the White Mountains of
New Hampshire and occasionally elsewhere*

I SPREAD MY WINTER GEAR ACROSS THE BED, AND IT SEEMS TOO MUCH TO fit back into the pack I've drawn it from. A slightly rank scent, a mix of storage and old use, fills the room; outside, the clear sky and early dark hint at a first frost.

I change out old batteries, wonder again whether to add in a third headlamp, note also how flimsy my emergency blanket feels, decide to hand wash the musty hat, resolve to give my sleeping bag a sun bath tomorrow. So many bits that will fit back into a storage pattern that is familiar too. That's the zip-spot where the thermal warmers are, I think. Better check.

"Bit by bit" sets up as a little soundtrack in my head; I hum, make up lyrics—"snow pit" rhymes with "bit by bit." That's how hurt happens, I remind myself, bit by bit, and then . . . all at once.

There is, of course, a deeper resonance here than my door-closed, I-won't-make-you-suffer-through-it-verse-making. Many will recognize this brief exchange from Ernest Hemingway's *The Sun Also Rises*:

"How did you go bankrupt?" Bill asked.

"Two ways," Mike said. "Gradually and then suddenly."

So much of winter's joy and hazard is contained in this tiny phrase: bit by bit can be the snow that animates the season, and it can be the slow steps of your way into a remote valley. So much joy . . . and a corona of caution: Bring also the good bits with you.

But then—I remind myself—bit by bit can be the little increments that get us to a place and time where a whole slope lets go, or a cloud descends, when everything changes instantly.

—Sandy Stott
Accidents Editor

A Walk in the Woods

Several people came to the aid of 44-year-old Omar L. when he suffered a medical emergency on the East Branch Road Trail in Lincoln Woods on the morning of November 19, 2020. Chris T. (age not reported) reached the White Mountain National Forest ranger station at 10 A.M., where he reported Omar's trouble. The U.S. Forest Service called Lincoln Police, who sent Lincoln Fire and Rescue and also summoned Linwood Ambulance to the ranger station.

Here, some complication and delay arose. Chris was unsure where he and Omar had been, and his confused description sent the fire and rescue all-terrain vehicle up the wrong side of the river on the Lincoln Woods Trail. After not finding Omar, the rescuers returned to the Lincoln Woods lot and called New Hampshire Fish and Game; Lt. James Kneeland set about organizing a search and rescue. Conservation Officer Christopher G. McKee reached the trailhead at just after 1 P.M., and at around 1:30 he joined other rescuers who, by that time, had located Omar. McKee spoke with an emergency medical technician from Lincoln, assessed the situation, and ran back to get Lincoln Fire and Rescue's ATV. He drove to the site, and, with volunteers stabilizing Omar's litter, drove the ATV slowly to the parking lot, where both the ambulance and Dartmouth-Hitchcock Medical Center personnel were waiting. At 3 P.M. the Dartmouth-Hitchcock Advanced Response Team helicopter took off for the medical center. Omar was reported to be "improved" the next day.

Comment: This relatively simple, albeit serious and hurried, rescue from a nearby trail has a backstory that serves also as comment. At the outset of their hoped-for "loop walk" on the morning of November 18, Omar and Chris must have noticed a sharp cold that presaged winter. The day averaged 20 degrees below normal atop Mount Washington, and, although Lincoln Woods is much lower, it was below freezing there, and snow grains punctuated the air. Aside from aiming for a loop, the pair didn't have other intent; nor did they have equipment, or food, or a map.

CO McKee, who interviewed Chris trying to unravel the pair's travels, figured out that they had started up the east side of the East Branch of the Pemigewasset River. A short hike brought them to the riverbank, where they said they saw the Lincoln Woods Trail on the far shore and decided to cross the river. This wetted the pair some. Turning north on the trail, they went on, crossed another brook, and got a little wetter. That led them to turn around, and as they started back, they noticed a group of hikers emerging from the Franconia Falls Trail. Omar and Chris had seen these hikers back at the parking lot and then reasoned that the Franconia Falls Trail would set them back

on a loop. But, when they reached the falls, they found the trail ended; dark fell soon after. It brought with it temperatures dropping into the teens.

The night was, as November nights are, a long one. The pair grew colder, and Chris, fearing they wouldn't get up if they went to sleep, kept them moving, even as they had lost the trail in the darkness. At some point, they came upon a small stream, crossed it, got wet again, and began to follow the stream downhill. The stream brought them to the river. At first light, reasoning that they had begun on that far side, they crossed the river. During the crossing, Omar fell and struck his head. As the pair made their way down the east side, Omar fell again. At this point (9 A.M.), they decided Chris should go for the help that became finally the flight to Dartmouth-Hitchcock.

CO McKee learned that neither man had ever hiked in the Whites, and that they thought they'd simply go for a walk in the woods. That the woods were named Lincoln and centered on a named river, too, escaped them, as did the need to carry any equipment or supplies with them. After all, what do you need to carry for a walk in the woods?

—S.S.

Running on Empty

Early on the afternoon of January 23, 2021, NHFG Lt. Kneeland got notice of a 911 call. Coordinates from the call placed the caller a quarter-mile off-trail in the Lafayette Brook drainage. When Kneeland called back, he heard the voice of a panicked man, desperate for rescue. The voice belonged to Michael B., age 35; somewhere in the vicinity and in similar need was Nicholas D., age 34.

At 9 A.M. the two men had left the Lafayette Place parking lot to speed hike the Franconia loop, going up Falling Waters Trail to Franconia Ridge Trail, intending to then hike from the summit of Mount Lafayette down Greenleaf Trail and Old Bridle Path. They figured on a four-hour circuit and, as is often true of those trying to move at speed, they were traveling light. Around 10:30 A.M., the pair paused to add a layer for the cold, exposed terrain ahead; then they climbed the final yards in the open to Little Haystack Mountain. Even as they did this, they felt overheated from their rapid ascent. Crossing the open ridgeline took them about an hour. Atop Lafayette, Michael and Nicholas located the sign pointing to the Greenleaf Trail down to Greenleaf Hut. Then the wind ramped up, filling the air with blown snow, obscuring the way.

Unsure of the trail, the pair followed some partially filled tracks, but those prints proved a dead end. They returned to the summit and tried again with

another set of tracks; those too went nowhere. At this point, the heavy wind discouraged them from trying to retrace their steps, and they felt the urgency of needing to find shelter, so they resolved to bushwhack down toward treeline.

This unscripted descent brought them into waist-deep snow, and beneath that snow the scrub of alpine spruce, which began to claw at their feet. Quickly, Nicholas lost first one, then his second shoe; branches also stripped off one of Michael's microspikes. Michael later reported to NHFG Sgt. Heidi Murphy that they'd gone "into full panic mode."

First, they tried their phones, but both were frozen and inoperable. Continuing their hurried descent, they came to an apparent opening in the brush and aimed down it. That made walking easier, but when their feet dropped through the snow, they got wet. The pair was at the upper end of a brook drainage. Michael began to cramp; Nicholas kept on; they got separated.

Michael worked to thaw his phone, finally succeeding in placing the initial 911 call. Then, via yelling he relocated Nicholas, and the pair resolved to stay together. Michael then tried unsuccessfully to rewarm Nicholas's feet, and, as reported to Lt. Kneeland over the phone, he worried that Nicholas was beginning to "slip away." Michael later estimated that the pair had stopped their descent around 12:45 P.M.

Kneeland plotted the pair's position at around 3,200 feet above sea level in the Lafayette Brook drainage, a quarter-mile from the Greenleaf Trail. His short exchanges with Michael convinced Kneeland that he needed to try for a helicopter rescue, even as the Pemigewasset Valley Search and Rescue Team was already mustering volunteers to go up on foot. New Hampshire's Army National Guard scrambled a crew together, and at 2:35 P.M. the Black Hawk helicopter lifted off from Concord. Kneeland had provided them with coordinates and an approach from the north up the Lafayette drainage to keep the copter below the cloud deck and roiled weather up high. At 3:08 P.M., the helicopter crew spotted Michael and Nicholas, lowered a medic to them, and, over the next minutes raised each man back up. At 3:38 P.M. the helicopter flew off to Dartmouth-Hitchcock Medical Center, and Kneeland was able to call down the ground rescuers on the Greenleaf Trail.

Comment: There's a lot afoot, or off it, in this incident. With trail runners and speed-hikers (the two categories overlap heavily, as runners will tell you that on long uphill they are almost always hiking), fitness is rarely an issue. Armored thusly, runners sometimes incline toward overcommitment, even on days when other factors may suggest caution. January 23 was such a day,

with an average temperature of -8 degrees Fahrenheit and winds averaging 60 MPH on nearby Mount Washington; within the cloud deck that fogged the ridgetop, those winds would also stir and restir the two inches of new snow that had fallen on the 22nd.

Michael was the pair's leader, having completed the demanding 8.9-mile loop several times, though all but one circuit he had walked or run with no snow underfoot. Nicholas was on new ground. They'd checked the AllTrails app, which opined that microspikes on their running shoes would suffice, and they'd looked at the weather, where they'd seen no reason to worry. Aside from some food, liquid, and clothing layers to manage the heat of exertion, Michael and Nicholas carried little with them. In this gear-heavy season, they were going light. At times, such a decision can seem to offer an advantage: The thinking is that a lighter load equals more speed and less time exposed along the ridgeline, but that is flawed reasoning.

All the trouble that ensued was rooted in the pair's preparations, which amounted to a thin margin of safety. Going "fast and light" depends on "fast." When limited vision and trail-finding troubles slowed them, Michael and Nicholas felt their thin margin vanishing. That feeling urged them to go fast again. As Michael said, they'd gone "into full panic mode," leading them into the drainage that stripped, soaked, and, finally, stopped them.

What about maintaining poise under duress? Not long ago, during an interview with a Mountain Rescue Service climber, I asked how he and his fellow climbers kept their composure in hard conditions. "So," said Steve Larson, "on MRS rescues you have climbers who have been up the world's biggest mountains and in the worst conditions. And most of us have been doing it for so long that, even when it's terrible conditions, we are comfortable." That comfort allows these rescuers to assess the terrain and the day and make good decisions. Because most of us lack that sort of experience, it's better to err on the lower risk side of adventures that may bring us into terrible conditions. Lt. Kneeland recommended Michael and Nicholas be billed for this rescue's costs.*

* New Hampshire is one of a handful of states with a law allowing authorities to bill hikers for the cost of their rescues, if their actions are found to be negligent. See Kelleigh Welch's story, "Who Pays for Search and Rescue? Behind the Tricky Economics of New Hampshire SAR," on [outdoors.org](https://www.outdoors.org/resources/amc-outdoors/features/who-pays-for-search-and-rescue-behind-the-tricky-economics-of-new-hampshire-sar/), February 27, 2020: [outdoors.org/resources/amc-outdoors/features/who-pays-for-search-and-rescue-behind-the-tricky-economics-of-new-hampshire-sar/](https://www.outdoors.org/resources/amc-outdoors/features/who-pays-for-search-and-rescue-behind-the-tricky-economics-of-new-hampshire-sar/)

Coda: The speed with which this rescue took place—just about three hours from call to copter haul-up—impresses . . . and cautions. Even had the helicopter been unable to find or lift the pair, PVSART was nearing the spot on foot. But, rescuers remind us, it is much wiser to be prepared for an extended wait.
—S.S.

Making the Call

On the same day, January 23, not far east of the helicopter drama just outlined, two brothers, Dirke B., age 39, and Eric B., age 45, set out to climb Mount Adams via the Valley Way and Star Lake Trail. Their plan included an assessment pause at Madison Spring Hut, where they'd decide if Mount Adams looked feasible. It did, and they went up. On the way down in the afternoon, the wind rose, stirring up the loose snow mentioned in the previous incident; the brothers lost the trail, and, following the inclination of most lost hikers, headed downhill. This brought them into deep loose snow at the head of Madison Gulf. They reoriented themselves using their map and started back up toward Star Lake and the hut. While floundering, Dirke broke a snowshoe and felt a "pop," then pain, in his upper leg. The pain in his leg and the deep snow slowed then stopped Dirke. The brothers conferred and sent out a general text asking for help.

Just before 4 P.M. NHFG's Lt. Mark Ober received notice from 911, including the callers' coordinates, but he was unable to make return contact. Ober was able to reach a family member who had received the text, and she gave him a sense of the hikers' capabilities and her sense that they would only call for help in an emergency. Ober began to muster a rescue crew. He was also able to plot the brothers' location, finding them off-trail to the east of the Buttress Trail. He sent a text directing them to try to climb back toward Star Lake; they texted back that they were trying. The temperature was near zero and the winds gusted near 70 MPH.

Ober reached the Appalachia parking lot on Route 2 at around 5 P.M. to await the rescuers, and around 5:30 he got a text from the brothers saying that they'd reached the hut. Ober was then able to get a call through to them and learn that upon reaching the hut and the packed-out Valley Way, the brothers felt they could get down on their own. Ober called off the rescuers and waited for the brothers, who reached the lot around 7:30 P.M.

Comment: This incident asks us to imagine when we might make a call for help. Answers will vary, of course, as people and days do, but some

common considerations emerge. Perhaps devising a short list of questions in advance can offer a way to deal with the first moments when calling for help seems an option.

- Where am I?
- What's my primary problem?
- What, after a pause to think, do I need to address my problem?
- What am I (we) carrying that can help me?
- Who has what I need?
- How equipped am I to wait?

These questions assume a clear mind, free of panic's and hypothermia's effects. Panic is an intensifier—pain feels stronger, weather more ominous, light in short supply. Cold can skew all planning, especially as one of hypothermia's onset signs is confusion and flawed reasoning.

Ober's incident analysis found that the brothers had responded well to their dilemma: They had discovered their descent error by checking their map; after Dirke's injury and their call, they had resumed trying to get back on track; once they had reached firmer ground, they had gotten down and out. These questions illuminate a significant omission in their planning, however. Though they were well equipped for their walking, the brothers were not equipped to wait in the cold and wind. The incident described next points to the gear that the most experienced winter hikers see as routine, even as it usually makes for a pack weighing over 30 pounds.

—S.S.

Slipping

Saturday, March 6, broke clear and cold; winds up high were modest. It was, in short, a superb day to go out and up. How good that must have felt for Rob Z., age 69, Katie B., age 38, and Eric R., age 37, who had planned a long and ambitious traverse of the Tripyramids, Mount Whiteface, and Mount Passaconaway. The trio are experienced winter hikers and four-season Appalachian Mountain Club trip leaders for whom White Mountain trails are preferred ground.

A little after 11 A.M., they had reached the top of the long slide that falls down the side of South Tripyramid. To reach the Kate Sleeper Trail, the trio needed to cross the slide, dropping around 100 feet. All three were wearing

clawed snowshoes that had been perfect for climbing the day's soft snow with some crust. Rob was in the lead, and he paused to look at the snow atop the slide; it looked firm, and he stepped out. A few steps showed him a very different surface, and he warned the others to stop. The slide was hard ice, likely the result of some recent rain and the slide's southern exposure to the sun. As Rob began to turn around gingerly, he slipped. "It was as though he just disappeared," Katie recalled. "It happened so fast."

Rob recalled the moment this way:

The surface on the slide looked like packed snow. I took several steps out before realizing it was like pond ice, probably from its south-facing melt-freeze cycles. Katie was a bit behind me and I told her to stop! I turned my head to look at her and she was crouching down and saying, "I am trying to get an edge in." Snowshoe crampons aren't sharp, as I tried to turn, I heard them grind on the ice surface and then I was on my way down, I think I was in a crouching position facing forward. Looking down 800 feet, I was flying down the ice, all I could think was I have to stop. It happened so fast; the acceleration was boggling.

Katie and Eric called out to Rob, finally getting an answer; they set out about putting on crampons and working their way across the slope to reach the far side where they thought they could descend more safely. During his slide, Rob had broken through the crust in spots and hit his left foot on something within the snow. He stopped at the same level as the Sleeper Trail's entrance. He couldn't stand on his left leg, so he crawled across the slide to the trail, where Katie and Eric soon arrived to meet him.

Thanks to their generous sharing, I have accounts of the day from all three hikers, and it's clear to me that their leadership training kicked in immediately. Rob remembered, "I thought, I am OK enough—no helicopter rides today, and I am not going down this slide in a sled if I can help it—but we are going to need help. We got out the map and assessed our position." Descent of the slide was the only option, and Rob felt that, with Katie and Eric's assistance, he could butt-slide that. He would depend on his partners' breaking a path into softer snow with their crampons; he would use his ice axe for control. Once down and on less slanted ground, the trio knew they'd need to wait for help.

With a clear signal at this height, they agreed that Eric would phone for rescue. Patched through to NHFG, Eric reviewed their plan to descend the

slide, and Lt. James Kneeland agreed with it and set about arranging to have rescuers meet them at the base of the slide. At 12:35 P.M. they set out down the slide, with Katie and Eric breaking trail and Rob working his way through the broken snow and crust. His stiff winter boot helped to minimize the pain, and his ice axe added to his sense of control. They reached the slide's base at around 2 P.M. The temperature was in the mid-teens with a light breeze.

There, they broke out their thermal pads and two sleeping bags, food and water, donned added clothing, and waited for the rescuers. They decided that Eric would snowshoe out along the Livermore Trail to meet the rescuers, while Katie would wait with Rob. Katie recalled:

Eric would text when he met up with the rescuers. It took some time, but not nearly as long as I would have thought, for Eric to send that text. I moved around, both to stay warm and to get things as organized as possible. The first three rescuers arrived before sunset. They did a thorough examination, and when more rescuers arrived they packed Rob into a litter, and we started down. When we reached Livermore, we found a snowcat waiting, and it was able to take all of us down the fire road—saving us miles and hours.



Rob Z. waits inside a bivouac sack for rescuers after sliding on thick ice on the South Trip pyramid slide. COURTESY OF THE CLIMBERS

Comment: The competence of everyone involved in this incident is evident in the preceding description. After a serious accident—Rob both fractured and dislocated his ankle—the trio assessed the situation, made a clear plan, called for help, and provided a sure sense of where they were and what they planned to do; then they set about following that plan. All three point to their training as AMC trip leaders as central to their response. That Rob had been one of Eric’s and Katie’s trainers must have offered some solace to him, even as he knew this was no simple injury that could be sloughed off in a few days.

It just seems right that Rob, Eric, and Katie should make the summary comments on this incident.

Eric: “First off, Rob is one among the many AMC leaders that have taught me so much about preparedness in the White Mountains. The lesson that came to fruition this day was to be prepared to spend/survive a night out in the event something goes wrong. I always find it interesting that invariably, on every winter hike, some passing hiker comments on the size of my pack and asks, ‘Spending the night?’”

Katie: “My biggest takeaway is the importance of efficient assessment and decision-making. Take Wilderness First Aid, and keep it current. Take leadership refresher courses. I’m still impressed by Rob’s self-awareness and ability to self-rescue over to the junction from the site of the fall. Rob knew he couldn’t bear weight, and he knew the consequences of waiting to make the call. His quick decisions at the junction helped maximize the daylight and allowed for a safe and efficient rescue.

“Rob is a good friend, mentor, and hiking companion. Over the years, he’s taught me map-and-compass skills, leadership skills, preparedness, etc. I trust and respect his experience and decision-making, and I am convinced that’s what led to a successful rescue.”

Rob: “I always carry enough equipment to survive the night, and my InReach provides my position every 20 minutes to the Garmin Explore website so I can always be found. My summer day pack weighs about 15 pounds, my winter day pack about 30 to 35 pounds. Hikers I meet on the trail often see my big pack and ask me where I camped. Sometimes, I pause and get into a discussion about light and fast versus heavy and safe. Dying of exposure in the Whites shouldn’t happen with proper preparation and equipment. My mistakes: I was tired (I hadn’t slept well for several nights), I misjudged the surface and did not mitigate the possible risk of sliding hundreds of feet. I trusted the crampons on my snowshoes to hold on the slide, but they are not made for ice. Look, think, act.”

Rob again, in a later email: “I just wanted to supplement what I have said by saying how important it was that I had Katie and Eric with me. I have hiked a fair amount with them and trust their abilities and decision-making. They helped make me comfortable on the slide and gave me feedback assessing my condition. We worked as a team planning my rescue with Fish and Game, getting down the slide, and making me comfortable when we reached the bottom. Can’t say enough.”

Rob projects his return to trails in September. We wish him that return and good walking.

—S.S.

General Thoughts on Skiing in the Winter of 2020–2021

The winter of 2020–2021 brought a new kind of uncertainty to the Northeastern backcountry ski community. Beginning the previous spring, the new coronavirus pandemic had driven a fresh cohort of skiers to start “earning their turns,” skinning uphill under their own power before descending ungroomed, wild snow. Throngs of less-experienced backcountry skiers emerging from ski shops clutching touring boots, lightweight skis, and mohair skins joined the ranks of condition-chasing Northeastern veterans. Many half-time ski tourers abandoned their ski-resort lift passes for reasons of social distancing. The more experienced backcountry travelers in and around the Mount Washington Valley braced for more significant crowding in their favorite spots, both below and above treeline. Pessimists also discussed the likelihood of greater risk-taking among the uninitiated, especially those who had little or no experience in avalanche terrain and had taken no formal avalanche training courses.

At times, the pessimists were justified in worrying. Consider, for example, an avalanche involvement in Tuckerman Ravine from January 22, in which one skier in a party of two was fully buried by a small slab avalanche while skiing in Left Gully during a storm. As reported by Frank Carus on the Mount Washington Avalanche Center (MWAC) Instagram page, he had met the pair earlier that day:

I suggested to these two skiers, who did not have beacons, shovels or probes, that they ski the lower-angled slope[s] . . . if they skied anything at all. They later told me that the excitement of new snow drove them to the top [of Left Gully] and into the upper start zone where the incident then unfolded.

At the top of Left Gully, the second skier had triggered an avalanche on top of his companion, then skied away to the base of the ravine, unaware that the partner had been buried. Fortunately, he did eventually realize his companion's plight and summoned other skiers from the base of the ravine who found his lost partner. This kind of incident, involving neophytes in the backcountry operating with little knowledge in suspect conditions, is exactly the sort of scenario that those concerned with backcountry overcrowding often mention in discussing their worries. The neophytes involved in the January 22 accident survived to tell the tale and educate fellow users. But as you will read in the next section, a far more experienced ski mountaineer was not so lucky. As is often said in avalanche courses: The mountains don't care how much experience you have.

We are lucky, in the Northeast, to have such easy access to the breathtaking high-alpine terrain of the Presidential Range; for skiers, it is an unparalleled resource. Lucky, too, that we have a long history of alpine mentorship that we can draw on in a time of rapid growth for backcountry skiing, not to mention four-season backcountry recreation of all kinds. The final blessing, for all of us who spend time on Mount Washington in winter, is the hard work and dedication of the MWAC snow rangers, who issue daily avalanche forecasts and bulletins and—as is made clear in the January 22 incident—are fully committed to education and outreach for all.

—*Scott Berkley*
Assistant Accidents Editor

Solo

The morning of Monday, February 1, was a brief window of calm before a storm. With inverted weather bringing negative temperatures to the Mount Washington Valley and sun, light winds, and calm skies in the alpine zone above the cloud band, Monday was an opportunity to go above treeline before a winter storm would bring heavy snow and high winds that night. Following that snow and wind, avalanche danger would rise, and moving safely in the alpine zone would become more difficult.

Ian F., age 54, might have glimpsed the Presidentials above the cloud band as he drove over from his home in Lincoln, Vermont. A self-established legend in New England's human-powered ski community, Ian was known for his irrepressible desire to ski the best snow around his home stomping grounds of central Vermont. He also made frequent trips to the Presidential

Range to climb and ski the steep chute and gully lines that populate its flanks. On February 1, he went to ski in New Hampshire by himself, parking at the base of the summer hiking trail that ascends Ammonoosuc Ravine and climbing swiftly to treeline. With an early start and good fitness, Ian was on the summit cone of Mount Washington by 11 A.M., according to cell phone records later collected by search-and-rescue agencies.

Once up high, Ian had a choice, per his text message to a friend the previous day: whether to traverse south and ski down the snow-covered streambed of Monroe Brook from the top of Mount Monroe, or to descend directly into Ammonoosuc Ravine, following one of the multiple skiable gullies from the west side of the summit cone down toward the confluence below. “Might ski Monroe Brook depending on how the Ammo looks,” he had written, suggesting that the Ammonoosuc, steep and pinched off at points, was the desired descent, and Monroe a backup. It’s not clear, following the MWAC’s investigation (source for this write-up), if he had also scouted the entrance of Monroe Brook. In the late morning, Ian was making his first turns into the Ammonoosuc.

By the end of the day Tuesday—following an overnight 24-inch salvo from the winter storm—Ian’s friends in Vermont had not heard from him in more than 24 hours, and they notified NHFG of his absence. The search began on Tuesday. NHFG officers checked for Ian’s car at trailheads on both the well-traveled east side of the range and the lesser-traveled west side. COs located his car on Wednesday morning, and in coordination with the MWAC snow rangers and local search-and-rescue organizations, they began to search a variety of skiable descents in the broader Ammonoosuc drainage, dispatching teams to Monroe Brook (Ian’s backup descending route) and the Ammonoosuc Ravine summer trail (his route of ascent), as well as the upper Ammonoosuc.

As the search progressed on Tuesday, investigators used cell phone records and GPS triangulation to track Ian’s movements to the upper-central section of Ammonoosuc Ravine. Searchers focused their efforts closer to the primary ski line coming off of the summit cone. At 4:25 P.M., a search team member using an avalanche transceiver picked up a signal in a choked-off section at 4,000 feet of elevation. Other searchers converged there and used avalanche probes to penetrate the snow, trying to “strike” the victim buried beneath the debris. With a dozen feet of snow accumulated against a rock outcrop, however, they were forced to dig partially into the debris pile before they could confirm, by probing, that there was indeed a body buried beneath.



Rescuers use a probe to search deep snow for Ian F.'s body in Ammonoosuc Ravine, below Mount Washington. MOUNT WASHINGTON AVALANCHE CENTER

As reported by MWAC lead snow ranger Frank Carus, extricating Ian's body from the depths of accumulated snow required the full cohort of eight searchers, who dug with foldable avalanche shovels for over 90 minutes before reaching the victim. Searchers shoveled what must have been, by a conservative estimate, 11,000 pounds of snow. Then they began the complex

process of belaying Ian's body down the technical upper stretches of the gully. From there, the team used a plastic sled to move him across the ravine to the Ammonoosuc Ravine summer trail and out to the trailhead.

What had happened in the intervening minutes between Ian's first turns into Ammonoosuc Ravine and the snow burial that took his life? As assessed by Carus, Ian must have skied into an isolated patch of dense, reactive snow blown together by high wind—known in avalanche parlance as a *wind slab*—that was hidden among the firm, icy bed surface snow that made the skiing difficult, but, also for the most part, stable and predictable. The wind slab would have swept him down the steep gully and carried him into a “terrain trap” that collected the shallow snow into a deeper burial. Carus writes, “It is likely that [Ian] triggered one of these pockets and was carried into the bowl-like depression, where the snow was stopped by an overhanging cliff that was angled upslope.” This, the “first avalanche,” as it was called in the MWAC report, would have caused Ian's death, ruled by medical examiners as asphyxia (suffocation) from burial under the snow. A “second avalanche,” triggered naturally from the quantity of falling snow on Monday night and Tuesday, had doubly covered the terrain trap where his body had come to rest.

Comment: Mount Washington is a mountain of two sides, especially for skiers. Hordes of fair-weather backcountry skiers make the pilgrimage to ski Tuckerman Ravine—“Tucks”—and the east side in the spring months, but an increasing group of more conditions-tolerant ski mountaineers descend the outlying ravines and gullies, many of which lie on the west side. Ian was unquestionably from the latter camp. Having spent many years skiing the difficult, variable conditions of Vermont's backcountry, Ian likely found the snow surface in the Ammonoosuc on February 1 challenging, but not deterring. The MWAC report noted, “Prior photos of the Ammonoosuc terrain show expanses of ice cliffs and icy rock slabs, all of which break up expanses of snow, leaving isolated areas of bed surface”—in short, a bulletproof, icy snow layer.

Scratching down icy snow and dodging exposed rocks would not have been grade-A skiing, but Ian was known to appreciate a ski descent no matter the conditions. The MWAC avalanche forecast, published early that morning, suggests what a skier or snowboarder might have expected in the alpine zone on that Monday: “Low avalanche danger exists throughout the forecast area, though the potential for small avalanches of wind-drifted snow remains in isolated areas at mid and upper elevations.” Ian chose to go up high and

ski a challenging route on a day when the snow conditions and the odds of safe travel favored him. Carus, in his assessment of the fatality, speaks less of the dangers inherent in the snow that Ian skied, and more to the question of his solitary skiing:

Even the most experienced skiers with all the correct preparations and equipment risk more when skiing alone. Even small avalanches can be deadly, especially over a terrain trap. . . . Skiing technical lines, in a thin snowpack above a notorious terrain trap, with no partners, even on a low-danger day, raises the stakes tremendously.

Solo skiing is hazardous in a way that solo hiking, for example, is not: The very core of every skier's self-rescue system is a partner or partners who, adequately equipped with avalanche transceivers and rescue equipment, can extract them from an avalanche burial.

Not all avalanche burials are created equal, however. Despite what MWAC concluded was a relatively small initial avalanche, Ian was buried as the snow funneled up against a rocky terrain trap and collected around him. Skiers are taught to scan for terrain traps both before and as they descend, but they are often difficult to sense in advance. The sheer volume of snow that collects during a slide and then sets up to the consistency of concrete in the minutes afterward is a challenge to even the best-trained and most prepared rescuers aiming to extricate an avalanche victim.

How we assess Ian's decision to ski alone on February 1 says a lot about who we are and how we approach the mountains. Much of the deluge of negative, internet-based commentary on solo skiing in the wake of the fatality was, to say the least, insensitive. Often those comments were "a useless exercise in hypothetically infallible self-endorsement," as the Wyoming skier and writer Cy Whitling put it.

If anything, we skiers would do best to use Ian's passing as a moment of reflection, to ask ourselves how we can move through the mountains, in their variable winter moods and moments, more safely and thoughtfully. This takes close scrutiny of one's own human factors, biases, and blind spots. Says Whitling, "There's an opportunity for growth here, but only if you enter it with a growth mindset." We—skiers, White Mountain lovers, humans—stand to gain much more by looking to Ian's story with humility and open-mindedness.

—S.B.

Cold Story

Sunday, March 14, showed no sign that spring neared. Mount Washington's Observatory recorded an average temperature of -5 , 17 degrees below the norm, with winds ranging from 60 to 100 MPH from the north; 5 inches of snow fell, or more accurately rode the winds in curtains and swirls. Early that morning, Roy S., age 66, set out up the Glencliff Trail to climb Mount Moosilauke. Retired and relatively new to winter hiking, Roy had developed a fondness for its sharp air and snows.

At around 8 P.M. NHFG Sgt. Heidi Murphy got a call from New Hampshire State Police, who had received worried calls from Roy's wife and son. Roy hadn't returned to Massachusetts from his hike as planned. State Police had checked the lot at the trailhead and found Roy's car still there. Sgt. Murphy called both relatives, who said that Roy did own winter gear and had a good deal of mountain experience; neither was sure of his exact route, but his son thought he had headed up the Glencliff Trail to Moosilauke's summit and planned to return the same way. Neither knew if Roy was carrying a sleeping bag or shelter.

Sgt. Murphy summoned two NHFG COs to start a hasty search; at 11 P.M. COs James A. Cyr and Christopher G. McKee started up the Glencliff Trail, and Sgt. Murphy then drove to trailheads at Breezy Point and the Moosilauke Ravine Lodge to see if Roy might have emerged at either. The two COs were turned back by high winds, cold, and blowing snow at 4,200 feet without seeing any sign of Roy; they reached the trailhead just after 3 A.M. After checking trailheads again, Sgt. Murphy drove into town, and, at 4:40 A.M., she called Lt. James Kneeland to organize the search for the 15th.

A full-scale search began that morning, with groups of volunteers from PVSART and MRS joining NHFG COs in covering possible trails and drainages; NHFG also requested a NHANG helicopter, which was promised for 10:30 A.M. The skies had cleared, and the cold had intensified, with the day's average temperature atop Mount Washington reading -17 degrees, 29 degrees below normal. The search ground on until midafternoon, when searchers from NHANG and NHFG found tracks heading down the Gorge Brook drainage. Those tracks led finally to Roy, who appeared frozen. Rescuers lifted him to the helicopter, which flew then to Dartmouth-Hitchcock Medical Center, where Roy was declared dead.

Comment: Although a day of blowing snow and deepening cold doesn't recommend itself as a day to go above treeline, Roy's chosen route on Moosilauke would provide some shelter on the way to the ridgetop. The bulk of the

mountain would rise as partial shield from the north wind, and up high the thick spruce would offer pockets of relative calm. Still, though Roy had read a forecast, the difference between weather near the mountain's base and above the trees would be extreme . . . and growing more so as the day went on.

A phone call to NHFG's Lt. Kneeland on the 16th offered a little more detail about Roy's route on the 14th. Two hikers had begun not long after Roy at around 8 A.M.; they had passed Roy partway up the trail, and then, a little after 10:30 A.M., the pair had met Roy again at treeline as they retreated from their climb. The two hikers had gone a short distance above treeline, and then deemed the weather too extreme to keep on. At that point, the pair spoke with Roy for five to ten minutes and advised against going higher, especially as he already looked cold. Roy said he would turn back if it got too bad.

How Roy got to Gorge Brook from that meeting atop the ridge between Moosilauke and its south peak remains a mystery. A few factors offer suggestion: The Gorge Brook drainage lies to the right of the trail along the ridge, and from the summit, it lies south, or downwind, with the Gorge Brook Trail skirting along the drainage rim. The day's very strong winds would urge a walker in the drainage's direction, and, as cold and wind took their toll it would be the path of least resistance.

Roy's cause of death was officially listed as "environmental hypothermia." The medical examiner estimated that he died on the 14th. An inventory of Roy's clothing and backpack pointed to a reasonable assemblage of three-season gear, but the absence of a sleeping bag and some form of shelter was inadequate for winter. That these two days were extreme winter intensified the problem. Also, amid his various layers Roy carried and wore jeans as basic legwear. Cotton's a problem in cold.

Turning back is its own art form. It takes experience, sensitivity, and imagination to conjure it in time, especially when it concerns cold, which often works on and against the very seat of sensibility.

—S.S.

Alpina

A semiannual review of mountaineering in the greater ranges

Karakoram

Continuation of the K2 winter attempts story. The previous Alpina described the triumphant first winter ascent of **K2 (8,611 meters)** in January 2021. February turned out less well. There may have been more summits, but there were more fatalities: four. The first was the Bulgarian Atanas Skatov, who disappeared on the descent after an unsuccessful summit attempt. He had already climbed ten of the world's 8,000-meter peaks. At about the same time, a group of four reached the start of the dangerous bottleneck, high on the peak: Juan Pablo "J.P." Mohr Prieto (Chile), John Snorri Sigurjónsson (Iceland), and Muhammad Ali Sadpara (Pakistan) and his son, Sajid. Sajid Sadpara had equipment trouble and retreated. The other three continued up and vanished. In July, Sajid returned to the mountain in search of his father's party. Sherpas from other guide companies found their bodies on July 26 below the bottleneck, 300 meters above Camp 4. An early theory about what happened, based on where the three bodies were found and the absence of any avalanche signs, is that the climbers reached the summit but were enveloped by extreme cold and poor visibility on the descent and froze to death.

Snorri and Sadpara had been described as the leading climbers of their respective countries.

Nepal Himalaya

Welsh climber Quentin Roberts, 29, and American Jesse Huey (who turns 43 in December 2021) tried to solve the riddle of the North Pillar of **Teng-kangpoche** (6,487 meters). Although three different parties have reached the summit by other routes—most notably Ueli Steck and Simon Anthamatten's climb via the Northwest Face in 2009—the soaring 1,900-meter monolithic North Pillar is an unclaimed prize for high-altitude climbers who have the necessary skill set.

This was Roberts's second attempt on the North Pillar, following a siege with Juho Knuuttila, of Finland, in 2019. That year Roberts and Knuuttila set



Jesse Huey, left, and Quentin Roberts with the North Pillar of Tengkangpoche behind them. QUENTIN ROBERTS

a new high point on the North Pillar at 5,930 meters, obliterating the former high point set by a Canadian expedition in 2006. Knuutila and Roberts turned around just a few pitches shy of the snow ridge leading to the summit, stymied by weather, fatigue after five days on the wall, and blank-looking rock ahead.

That upper rock shield is “definitely still a huge question mark,” Roberts says. He and Huey didn’t even make it back up to that 2019 high point in the spring of 2021, as weather never cooperated. But Roberts is already scheming for a third trip. “I got a message from Conrad Anker after I said we bailed again,” Roberts says. “Conrad said that for him two out of three trips to the Himalaya are always failures. So now I think I need to go back and finally do it the third time.”

At 7,162 meters, **Baruntse** in eastern Nepal has been offered by commercial companies to climbers of little experience, by the line of the original 1954

ascent. Other lines are far more challenging. In May 2021, Czech alpinists M \acute{a} rek Holeček and Radoslav Groh completed a new route, “Heavenly Trap,” on the formidable West Face. They climbed alpine style—no fixed ropes, no high-altitude camps. The climbers encountered severe technical difficulties and very bad weather, which got much worse on the way down the normal (Southeast Face) route. They were struck by Cyclone Yaas, which had ravaged West Bengal, and they were pinned down for a miserable 80 hours. When the storm finally let them descend, they were airlifted by helicopter to Kathmandu, ten days after starting up the mountain. A photograph of them on return to Kathmandu shows two muscular, emaciated men.

After a year of nearly total inactivity, **Everest** (8,849 meters) opened up, but only partially. By the end of May, some 500 summits had been recorded. By far the most climbs were from the Nepal side. On June 28 the *New York Times* published yet another photograph of 40 or more climbers lined up, apparently on the Lhotse face. The numbers would have been higher but for the COVID-19 pandemic and the late-May onslaught of Cyclone Yaas. Nearly 200 foreigners abandoned their attempts. In all, four climbers died.

Chinese authorities were especially cautious about the virus and shut down the Tibet side of the mountain before mid-May. In a ludicrous gesture, China had planned to establish a “line of separation” on the (not very big) summit to protect climbers from possibly infected individuals coming up from Nepal.

On June 27, Bhadra Sharma and Emily Schmall reported in the *New York Times* that by early June, “at least 59 infected people had been on the mountain, including five others who reached the top, according to interviews with climbers and expedition companies and the personal accounts of social media users.” Very few Sherpas had been vaccinated when they reached Base Camp.

Kilian Jornet of Spain and David Goettler of Germany contemplated an ambitious plan to climb the West Ridge, descend to the South Col, and then summit Lhotse and descend by a different route. The expedition failed, but they or some others will doubtless succeed in coming years.

An underappreciated climb. On June 8, 1924, Andrew “Sandy” Irvine and George Mallory left their camp high on Everest, strapped on their oxygen bottles, and headed for the still-untouched summit. Then they vanished. Their fate has been called “the greatest mystery in the history of mountaineering” (Wade Davis, *Into the Silence*, Knopf, 2011) and has been the subject of endless speculation. The 1999 discovery of Mallory’s body left many questions. It was front-page news: Millions of people know about Mallory and Irvine.

In contrast, even among climbers the names of Edward Norton and T. H. Somervell are obscure. Yet four days before Mallory and Irvine, they made a remarkable attempt on Everest and climbed higher than anyone had before. Unlike Mallory and Irvine, Norton and Somervell carried no supplementary oxygen. Their equipment was primitive by today's measure. They each wore "a pair of boots of felt-bound leather and lightly nailed with the usual Alpine nails." No crampons. They avoided Mallory's windy Northeast Ridge for a traverse below. Norton and Somervell were amazingly high when Somervell had to stop because of a dangerously inflamed throat. Norton continued another hour, reaching the enormous snow couloir that cuts the North Face. When it came time to turn back, his altimeter read 28,126 feet. His was an amazing achievement. His name and Somervell's should be well remembered.

Patagonia

In a busy winter season, partly peopled by climbers stuck because of the virus, the most spectacular feat was a solo north-south traverse of the **Fitz Roy** massif, by Belgian Sean Villanueva O'Driscoll. Known as the Moonwalk Traverse, it took six days. Along the way he encountered several live climbers and an old corpse. On top of Fitz Roy, he sang, danced, and played the flute that he was carrying. The traverse had been done once before, in the opposite direction, by Alex Honnold and Tommy Caldwell in 2012. Afterward, to quote Patagonia Vertical, Rolando Garibotti's authoritative guide on Instagram ([Instagram.com/patagoniavertical](https://www.instagram.com/patagoniavertical)), "partnered with Jon Griffin, O'Driscoll opened a heinously sustained #6 off-width route up Fitz Roy they dubbed La Chaltenense."

As documented on Patagonia Vertical, climbers established many hard new routes, many accomplished very fast indeed. Just one example: Santiago Scavolini soloed the Motocross Traverse, a 750-meter-long route. Scavolini covered the first 400 meters in an hour and 15 minutes.

Climbing Fast and Alone

Neither solo climbing nor speed records are new, but they have lately been often combined, as indicated in the previous Patagonia description. Currently the most sensational exemplar must be the Swiss Dani Arnold. He climbed the Cima Grande di Lavaredo in the Dolomites in an astounding time of less than 47 minutes in September 2019. And the Eiger in a little under two hours

30 minutes, in April 2011. Unlike his most famous competitor, Ueli Steck, Arnold is still alive. In an interview reported by CNN in October 2019, he said, “I know what would happen if I make any mistakes.”

On August 15, 2021, Arnold set another blistering speed record. He climbed the Petit Dru, in the French Alps, in 1 hour 43 minutes 35 seconds. With that he held speed records on five of the six classic North Faces of the Alps, the others being the aforementioned Cima Grande di Lavaredo, the Matterhorn (2015), the Piz Badile (2016), and the Grandes Jorasses (2018). The only of the faces on which he doesn't hold the record is the Eiger. The late Steck broke Arnold's 2011 Eiger record in 2015. Arnold, however, said he had no plans to return to break Steck's current mark. “Partly out of respect for Ueli,” he told Ed Douglas for a profile in *Climbing* magazine. “He's not here now. But being focused all the time on being the fastest? You know, the young generation [is] coming. I don't want to be hung up on it. There are too many other things to do.”

Denali

The Muldrow Glacier surges. Glaciers are in retreat as temperatures rise. Starting around March of this year, Denali's famed Muldrow Glacier behaved in a dramatically different way. It flowed downhill at 50 to 100 times its normal rate, reportedly gaining 30 to 60 feet *per day*. Unusual though this advance may seem, it was overdue. The Muldrow is one of the approximately 1 percent of the world's glaciers that experience “surges.” The last one began in 1956; another was predicted for 50 years later. The earlier surge pushed the Muldrow forward by some *four miles*. This one may do the same. The immediate impact is that the glacier has become unstable and much more crevassed. Denali's early attempts and first ascent (1913) were from this side, but it may prove too dangerous in 2021.

—Steven Jervis, with Michael Levy

Sources include Rolando Garibotti's Instagram guide, Patagonia Vertical, Instagram.com/patagoniavertical, Alan Arnette's blog at alanarnette.com/blog, and Alpinist.

Shark's Fin

On their second attempt, in 2011, Conrad Anker, Jimmy Chin, and Renan Ozturk became the first climbers to summit Meru's Shark's Fin.

I transfer weight onto a ten-ton slab
of granite. It starts to move—surface fractures,
loose rock, the dreaded House of Cards.

I tap the fragile surface—hollow flakes—
drive a piton in—it holds. I promised
Chai I wouldn't die. Leading Renan

and Conrad up this knife-edged pinnacle,
to twenty-one thousand feet, where Shark's Fin slices
heaven. Many have tried; not one has made it.

We push through wind chill, frozen fingers, numb toes,
exhaustion, hunger, unrelenting snow—
stuck in our tent, suspended from a ledge.

In the Tetons an avalanche swept me down
two thousand feet at eighty miles an hour—
so this is how, I thought, *I'm going to die*.

Renan outdid me: backcountry skiing,
flew off a cliff, broke his skull,
his neck, cut off half the blood-flow

to his brain, comatose.

He walked and spoke again. Conrad
let him join this expedition.

Last night we nearly lost him—confused,
speaking gibberish, like a stroke;
no way to get him down.

Today he's climbing strong, leading us up
the final stretch to Shark's Fin summit:
you get a taste for this adrenaline.

Mount Meru, axis of the universe,
source of the Ganges, circles through the night;
above the Himalaya the stars kill.

John Whitney Steele

JOHN WHITNEY STEELE is a psychologist, yoga teacher, assistant editor of *Think: A Journal of Poetry, Fiction, and Essays*, and graduate of the master of fine arts poetry program at Western Colorado University. His chapbook, *The Stones Keep Watch*, was published in 2021 by Kelsay Books. He lives in Boulder, Colorado, and loves hiking in the mountains.

In Memoriam

Andrew Norkin

Andrew Norkin, longtime director of trails and recreation management for the Appalachian Mountain Club, died on February 28, 2021, after a years-long battle with cancer. He was 57 and lived in Denmark, Maine, with his wife, Joy, and their children: Felix, Mae, Sophia, Jonah, and Noelle.

Andrew served as AMC's director of trails for 21 years, starting in 1999. During this time, AMC's Trails Department increased from two full-time employees to nine. Countless other seasonal employees walked past his desk in Woodchuck Lodge, the Trails Department headquarters at Pinkham Notch in Pinkham's Grant, New Hampshire. "The number of aspiring young professionals that he helped propel forward in their careers is staggering, yet he did it in such a quiet and consistent way as to rarely attract attention to himself," wrote Justin Preisendorfer, who is the eastern region winter sports team leader for the U.S. Forest Service and who started his career as a seasonal worker



Andrew Norkin at Lonesome Lake with his son Felix. CRISTIN BAILEY

at Camp Dodge (AMC's training facility for trail workers). (Preisendorfer also is a former Accidents editor for this journal.)

The first time I worked in the field with him was on a hot, muggy summer day laying out a relocation along the Carlo Col Trail in the Mahoosuc Range. We thrashed around on either side of a stream, clearing the new trail route. An hour or so in, Andrew said, "Let's take a break."

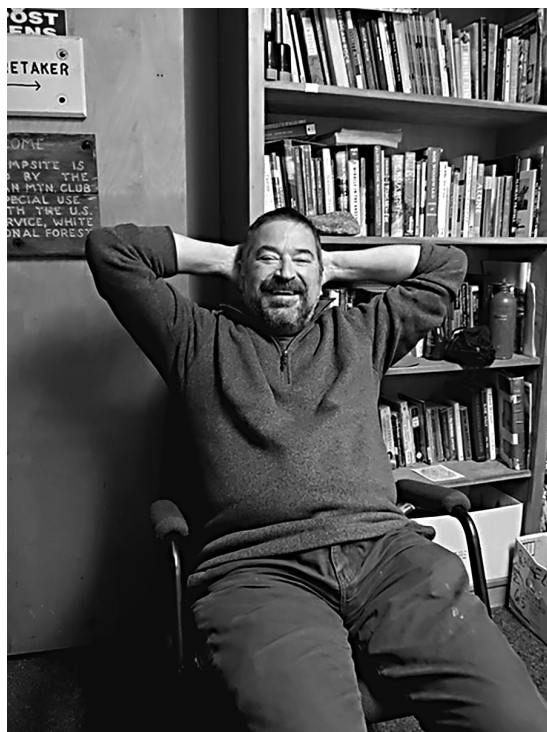
Having spent the past few years chasing down my former boss, a fast hiker who never paused for more than a moment, I drank quickly from my

water bottle, checked the straps on my backpack, and prepared to get going again. I looked over at Andrew, sitting down on a stump, pawing through his pack and looking for a snack.

"Oh," I said. "We're like *stopping* stopping." I knew I'd never have to prove anything to Andrew.

Andrew was a big guy. Tall, broad-shouldered. Once he tossed tree-length logs around while waiting for a helicopter to drop trail construction materials in the backcountry because he said he hadn't been to the gym that day. But he was unintimidating. After he tossed those logs around and ate most of a block of cheese, he asked about my family on the drive back to Pinkham Notch. I was a seasonal employee that year. He knew I could be gone soon, but to Andrew that didn't matter. He treated all of his staffers respectfully.

I appreciated that because I was one of very few female trail staffers, and I suffered from a persistent case of imposter syndrome. Andrew started to set goals for me measured in my strengths and humanity rather than some



Andrew Norikin in the office at Pinkham Notch. SARAH AUDSLEY

patriarchal ideal. He didn't expect me to immediately excel in the ethics of land management or guess at the right decision. He always saw the best in each staffer's individuality. I began to see myself through Andrew's eyes.

Andrew had a unique ability to connect with people and hold onto them in his encyclopedic memory and giant heart. AMC employees, White Mountain National Forest staffers, and volunteers remember the sparks of kindness and contagious positivity he gave them. Andrew cleaned toilets at Camp Dodge. He listened quietly to a roomful of large personalities before speaking last. He invited new AMC coworkers out into the high elevation of the White Mountains for their first hiking experiences. He brought people who knew nothing of dog mushing out onto the back of his dogsleds. This same attitude applied to his family life in Denmark, Maine.

Although I never saw more than my own lived experience as a white woman, I would like to think that Andrew's personality and leadership style made space for all identities to thrive. For me, as for other women, Andrew was our first introduction to traditionally masculine roles of construction, engineering decisions, and project budget decisions. When any of us stood by a tree with the rumbling chain saw in hand, squelching in the mud and holes of trail work, or beneath the spinning load of a helicopter, we knew Andrew was there with us.

"I will ever be grateful for the trust he had in me, and the self-confidence he inspired through it. I appreciated the solid strength of knowing that he had my back, and also trusted I was doing my best, even when there was not a right, or even good, solution," said Mariah Keagy, a former trail supervisor for AMC. "I appreciated the way that he shared technical advice and expertise in a way that made you feel empowered, not reliant."

Amid the yearlong grind of constant trail restoration projects, Andrew ushered in a new era of trail work for AMC, of making new trails and using new techniques. Right after he was hired, he immersed himself in the Grafton Loop Trail initiative. The Maine Appalachian Trail Club and AMC shared the trail-building duties along the 50-mile loop trail encircling Grafton Notch in Maine, and the two organizations share maintenance of the trail. Building the trail took more than five years, from 2002 through 2007. The GLT was the first new trail built in AMC's trail network since the Centennial Trail in 1976.

Before the GLT project was finished, AMC began its Maine Woods Initiative, which launched in late 2003 with the acquisition of Little Lyford Pond Camps, now called Little Lyford Lodge and Cabins. Andrew led a skilled team to realize a vision of a connective lodge-to-lodge trail network. Trail

contractor Mike Cooper, who worked with Andrew on the GLT and Maine projects, said that when they worked in the field together, they were “focused on the tasks, enjoying the moment, and appreciating the work. I learned a great deal from him—most importantly for me, how to be a better person,” Mike reflected.

Over twenty years, trail bridges grew in engineered specifics and complex materials, evolving beyond native stringers and cedar planks. Andrew thrived in these new construction challenges, overseeing a diverse portfolio of bridges across the Northeast. Even the short list drawn from the collective memory of AMC staff is impressive: the enormous laminated beams of the bridge his staffers build on the Nineteen-Mile Brook Trail, the traditional stringers of the Direttissima bridge (off Route 16 in New Hampshire) and Nahmakanta bridge (on the Debsconeag Backcountry Trail in Maine), the Americans with Disabilities Act-compliant trail at Lynx Pond in the Katahdin Woods and Waters National Monument, and the vast Lost Pond Trail boardwalk near Pinkham Notch. And then, there was the Cascade Brook Bridge, built of high-tech fiberglass composite materials, an exciting project for Andrew and AMC Trails. The bridge lasted less than twelve months, spring runoff dismantling the pieces and scattering them downstream. Like with everything else, Andrew shrugged it off as a lesson learned.

Parallel to everything Andrew and I shared at work was something else: He and I were both dog mushers. Andrew arrived back in the East for his AMC job in a one-ton pickup with his team in the dog box on the back, fresh out of Alaska. When Andrew stopped racing sled dogs, he gave them to the tour company I was working for. Before I had even met Andrew, I knew his dogs: Gus, Zeus, Peaches, and Lippy. When I got my own dogs and needed a dog box, Andrew called me on a weekend to say he had found one online. He also gave me his last three doghouses and a piece of plywood to replace a roof.

Andrew continued to call me before or after every Can-Am Crown International Sled Dog Race, even after I no longer worked for him. After my first attempted 250-mile race, which I scratched in the middle of the night, I woke up to a text from Andrew empathizing and saying I had done my best. I knew then that Andrew had been watching. I got a message from him after I won the Can-Am 100 in 2020. Andrew used to say, often, “When you’re behind a good dog team, there’s nothing like it in the world, and it’s impossible to describe.”

One Norkin-built doghouse remains in my dog yard. It has a wide door, an entry at the front end, and it sits on stout 4-by-4-inch posts. It is different

from all my other houses: stained dark brown with a red- and yellow-paint-flecked door frame. After puppy Bruce Springsteen broke three different styles of houses, I placed him in the Norkin house. It is still standing.

On the morning Andrew died, before the news had reached me, I was out for a 30-mile run with Bruce and the rest of my young dog team, dogs I had mostly bred and raised myself from puppies. With no warning, I burst into tears about 10 miles into the run, looking at the team and also feeling a sudden loss. I pushed the tears back so I could focus on running. I had no idea what news I would come back to.

Andrew left behind confidence that he bred in me: It's invisible and foundational. Others have told me the same thing. When I dig deep inside myself for strength, it's sometimes Andrew's voice I hear.

Many rites big and small honored Andrew Norkin. AMC dedicated a three-sided shelter on Maine's Little Horseshoe Pond in his memory. It also installed a memorial plaque on Croo Bridge at Mount Cardigan Reservation. An informal memorial hike to Square Ledge in Pinkham Notch with AMC staff and Andrew's family took place on March 4. Former trails manager Cristin Bailey carried a memorial "5-0 Norkin" flag (honoring Andrew's radio call sign) to the summit of Mount Shasta in California. I named a puppy—a future sled dog—after him. There is also talk of changing the name of the AMC Trails Department building in Pinkham Notch from Woodchuck to Norkin.

—*Sally Manikian*

Pressed Flowers

Trollius butter bombs, martagon
lilies, ghost flowers.

Muddy alpine pasture paths framed
by flowers I might drink—
blue gentian and génépi,

viola, which we call pansies,
rising yellow through snowmelt.

And higher, wild rhododendron,
rampion bells, cushion
pink moss campion—

There, in the high meadow, feet
planted, holding my stance, I count
twelve different varieties.

Later, naming the memories
presses them back into my eyes.

The flowers open and speak to me,
clear and close to the heart
where my feet remember the mountain.

Jeffrey A. Summit

JEFFREY A. SUMMIT, PhD, is a research professor in the music department at Tufts University, where he teaches ethnomusicology. His most recent book is *Singing God's Words: The Performance of Biblical Chant in Contemporary Judaism* (Oxford University Press, 2016). His CD *Abayudaya: Music from the Jewish People of Uganda* (Smithsonian Folkways Recordings, 2003) was nominated for a Grammy award.

News and Notes

Tracking COVID through Trail Applications

In the past two News and Notes sections, we tracked the land management response to the pandemic: trailhead and public lands openings and closings, trail club decisions, and the various staffing decisions made during summer 2020. Staffers making those choices responded to the threat of illness, but they also were dealing with the public clamoring to get outside in 2020. People sought places they could socialize outdoors, places to go because they couldn't go on vacation, and places to work out when gyms were closed. Understanding and describing that impact will occupy many experts for many years.

Now some new data from two electronic trail platforms in 2020 prove the surge in trail use that many people observed. The largest, AllTrails, an open and crowdsourced mobile application, reported a 171.36 percent increase in 2020 of hikes logged on the app. It recorded almost 1.4 million unique users.

More locally in the Northeast, the publicly available, curated, and partner-driven Trail Finder—online at trailfinder.info—saw a similar uptick in use of its website. “In 2020, Trail Finder had almost 2 million page views, a 90 percent increase from 2019, and almost 650,000 users, a 61 percent increase from 2019,” wrote Claire Polfus, project director for the Center for Community GIS, which supports the Trail Finder platform. “The biggest peaks were in the spring during ‘lockdown,’ but the increases were seen throughout the year,” she added.

When the use of the site spiked, Trail Finder worked with land managers to add new information on hiking safely and trails that were closed, a new search function that allowed searching by trails that were open or closed, an information library that included a post about busy trails, and information on finding businesses near trails. Trail Finder is run by the Upper Valley Trails Alliance and a partnership that includes the University of New Hampshire Cooperative Extension, the National Park Service, and the Center for Community GIS.

Will these trends prove consistent through 2021? Polfus said that by July 2021 trail traffic was up 4 percent over July 2020 and page views of the site had decreased about 15 percent. “This is because we didn't see those spring surges that we saw in 2020,” she said. “Summer 2021 is tracking at about the same usage as summer 2020.”

—Sally Manikian, *News and Notes* Editor (from interviews with Trail Finder staff and data from RunRepeat.com)

Editor's note: See Books and Media in this issue for two reviews of mobile trail applications.

Wildfire Risks Increase in White Mountain National Forest

The warming climate is raising the risk of wildfires across the entire United States, even in states such as New Hampshire. Now, forest managers in the White Mountains are stepping up their efforts to prevent major damage and warning neighbors: It could happen here.

On the edge of the White Mountain National Forest in Conway, public lands with dense woods fill the backyards of houses. District forest ranger Jim Innes lives around here. He's one of the forest managers trying to warn residents of the White Mountains about forest fires.

When I visited in June 2021—the hottest and driest June on record in New Hampshire—Innes dug down into the leaf litter just within the forest boundary, and all he saw was fire risk.

“It's just all dry leaves. This stuff will catch in a minute—all it would take is a cigarette or something like that.” He kept digging. “It's dry . . . like all the way down.”

Innes was crouched next to a strip of dirt that's often used by local mountain bikers and dog walkers. It looks like a trail, but it's actually a fire break, kept clear by the U.S. Forest Service with leaf blowers and chain saws.

For a long time, creating these fire breaks and thinning out vegetation has been the bulk of the Forest Service's fire prevention strategy in this area. USFS maintains these gaps, which would interrupt any fire that started near these homes and make it easier to put out.

But lately, Innes feels like he should do more. New Hampshire's been in a drought for over a year. And a lot more people have been in the woods here during the pandemic. Innes estimates forest managers put out hundreds of campfires last year. “Bunches,” said habitat biologist Jessie Dubuque, who was with us in the woods. “Yeah, it was an incredible amount.”

Innes and Dubuque have deployed to fight huge fires out West in recent years, so they know what the worst-case scenarios are like. Dubuque said she witnessed some of the most extreme fire behavior she's ever experienced during a fire she worked on in Oregon last year.

“It was completely out of control and really kind of scary,” she said.

Climate change is playing a role in driving fire risk across the country. In New Hampshire, increased rain is still interrupted by long dry stretches, with hotter temperatures, shorter winters, and less snow.

So when Innes looks at the forest around Conway today, he sees a potential disaster waiting to happen.

“I just want to get ahead of it, so I don’t have to be in that position to explain to these people, like, ‘Oh, sorry you lost your house,’” he said. “It could happen. And I don’t want that. Obviously, no one does.”

USFS researcher Adele Fenwick has been studying the history of these fires in the area, including on South Moat Mountain in Conway.

“There are a lot of subtle dangers that people out West are accustomed to and still may or may not do anything about,” Fenwick said. “But I think in the East fewer people are aware of the dangers around their houses.”

This summer, the USFS will conduct a controlled burn to clear out the dry fuels here. They’ll do similar burns up and down the edge of the forest in the next few years in Albany, Jackson, and Bartlett and repeat the process every five to seven years into the future.

For the national forest, it’s a new way of using fire as a tool. In the past, they’ve mostly burned to clear space for nesting birds or blueberry crops. Now they’re thinking about community protection, for neighbors like Becky Bishop.

Bishop was walking her dog, Rocky, when she ran into the Forest Service workers, recognizable by their tan uniforms. The first thing she asked them was: “Are they going to do that burn?”

Bishop moved from a more developed part of Conway, a few years ago, to the condos at the edge of the forest. “I love it out here,” she said. “It’s beautiful, it’s nice and quiet and the dog likes it. . . . We have the best views.”

She recently got a public notice about the burn project that will soon take place in her backyard. She’s never worried about wildfires before, but she’s glad it’s happening.

An analysis prepared for New Hampshire Public Radio by Dover-based Athenium Analytics, which gauges weather risks for insurers and the U.S. government, puts the Conway burn site at a medium risk for a wildfire. That risk is elevated in the adjacent neighborhood, mainly because of its many structures surrounded by dense vegetation.

“We can see clear signals of droughts in the Athenium Analytics weather data record,” the analysis says of the Conway area. “The current deficit in soil moisture conditions and increase in temperatures can lead to enhanced fire risk this summer.”

NEW HAMPSHIRE’S NORTH COUNTRY HAS HAD SOME BIG FIRES IN RECENT years. The Dilly Cliff fire in Woodstock in 2017 took a month to put out,

temporarily closing part of the Appalachian Trail. The year before that, a fire spread from a campground to a covered bridge in Albany, not far from the Conway prescribed burn site.

Each year, structure fires stem from brush burning and threaten multiple homes in wooded areas of the state. And drought can limit the availability of water to fight these fires.

Sporadic human-caused fires can also be bigger and longer-lasting than the kind that used to happen here every ten or fifteen years. Research such as Fenwick's shows more than a century of evidence of small fires from lightning strikes, or set by Indigenous people and, later, colonists.

Until the late 1800s, this pattern of fire helped clear out brush and limit worse damage from out-of-control blazes. Then came huge fires from logging and railroad construction. The government cracked down on intentional burning.

Some catastrophic fires occurred elsewhere in the region after that—including the blazes that covered large swaths of New Hampshire and Maine in 1947, reshaping Acadia National Park.

But Fenwick's research suggests that more natural burns in the twentieth century would have kept these ecosystems more balanced, potentially mitigating accidental fires that did spring up. Prescribed burns would have controlled the vegetation that flames up more easily and burned back the dry leaf litter that builds up on the forest floor.

Now, that litter keeps fires smoldering out of sight for days. This was a big problem in fighting the Albany Covered Bridge fire of 2016, according to Innes.

Fenwick is helping Innes's team with the Forest Service expand the ways it mimics those natural burns of the past in new parts of the White Mountains, hoping to protect fragile, fire-dependent species like the jack pines that grow on rocky outcrops and mountain ridges.

She hopes the Forest Service's outreach about prescribed fires will have the added benefit of reminding community members to take more care around their properties, by moving flammable materials such as shrubbery, firewood, and pine needles away from the house.

These land managers agree that larger fires, damaging life and property, could happen again in New Hampshire. They hope, with more prevention and awareness, that those fires won't happen.

—*Annie Ropeik, New Hampshire Public Radio/National Public Radio*
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Valley and Skyline Sketches

The Goldfish Pond

Gregory L. Norris

A very long time ago, when I was 6 or 7, I made a strange discovery on what began as a routine day. It was summer, a curious summer, out of focus from the rest of the world, in Windham, New Hampshire, a place where few people lived, a place where magic lurked in cool glades and sunlit meadows.

The year before, my best friend Jonathan and I had seen a giant bullfrog lurking in the cement pipe where the brook meandered through the meadow and under the one-lane country road. We'd named it Jeremiah and captured it. The monstrosity was bigger than a cat, the size of a small dog in our arms. Neither of us knew what to do with it once it was in our clutches.

Jeremiah had remained in captivity for only a handful of unforgettable seconds before slipping out of Jonathan's grasp. When we last saw it, the giant was hopping away, a gray-green apparition. It vanished into the overgrown meadow of timothy, buttercups, and black-eyed Susans on the far side of the road. At the end of every summer, that field transformed into a webbed killing ground ruled over by *Argiope aurantia*, the black and yellow garden spider, which caught and ate anything unlucky enough to venture there, such as Monarch butterflies feeding on milkweed.

One summer before Jeremiah, Jonathan and I were picking flower bouquets for our mothers at the edge of a thin trail hikers had pounded through the meadow over the years. A snake crossed the trail. We held our breaths and waited for it to pass beyond. The snake continued. Seconds tolled with the weight of minutes, *hours*—how long, how *big*, was the thing? In my memories from which all color has been drained, at least twenty feet. Maybe more.

THIS YEAR, JONATHAN, MY FELLOW ADVENTURER AND THRILL-SEEKER, WAS gone. The spiders in the meadow hadn't gotten him. Neither had the bobcat we'd once spotted racing up the maple tree in our backyard. No, Jonathan's family had moved away from Windham to a place called Nottingham, which sounded adventurous and mysterious, like the classic story, but far away, a distance of light years. I was alone.

So, on an unremarkable summer morning, bored but not forgetting that I lived in a country realm where the uncanny existed at the periphery, I ambled

past the old place where Jonathan's family used to live, over the brook with its population of crayfish, and picked up the dirt road that wandered behind the string of year-round bungalows. I came to the seasonal places on the shore of Cobbetts Pond, a deep, cold lake. I was searching for new myths and legends.

The residents of those houses stayed only from the end of May until early September, right before the air turned chilly. There was a one-story house, green with cream shutters, which different families rented throughout the season, and a group of tall New Englanders cloistered right to the very edge of the water. Two of the houses boasted Victorian details—one with a cupola and gingerbread lattice work, another with plantation shutter doors that formed private changing rooms for swimmers. The third house in line was an oblong box with dusty blue paint, and it was here that I discovered the goldfish pond.

Two proper old ladies with white, white hair lived in the house with the cupola every summer. Their front room was filled with bookshelves and a thousand old books that smelled like vanilla, as I discovered earlier that summer when, thinking myself quite smart and supremely bored, I decided to go trick-or-treating in June. The two old sisters took pity on me and invited me in for homemade cookies—chocolate chip, still warm from the oven. The two sisters also tended enormous rose shrubs that were growing wild and spilling over the cement steps leading down to their front door. The air was sweet from the blossoms, bewitchingly so, but I recalled how the thorny spikes grabbed at me like talons. The spots where they jabbed bled, then turned itchy, and so I veered right, intending to loop around the dirt road until it picked up once more at the pavement closer near the pond.

A woman's voice drifted out of that blue house. She was singing to something on the radio. I've since forgotten the song, but at the time, I knew it and decided to listen. I got closer. The rose bushes from the house of books had spilled over and onto the other house's narrow strip of yard. In avoiding their thorny clutches, I noticed something I'd never seen there before.

It looked like a pond, but it was much, much smaller than the vast, deep lake just beyond my vantage point. It existed a short way down the slope where the yard leveled off. It was set before a flagstone patio with wooden Adirondack chairs.

It was, in my memory, perhaps ten feet across. The ground surrounding it was typical pine forest, crisscrossed by gnarled roots running above the earth, the soil brown and dense from untold decades of rotting needles.

From this landscape, the cement pond appeared, forming a crater filled with living plants—native cattails and flora that looked like underwater

leaves. Swimming in the platinum-colored stew were, wonder of wonders, goldfish! My great discovery was a goldfish pond!

The fish in there were not the giants seen in pictures of Japanese koi ponds, no. These were your goggle-eyed, garden-variety specimens found in algae-covered fish tanks in the pet department of the Woolworth's store one town away.

Oh, but how happy those goldfish appeared as they flitted through their cement world. Some swam alone, others in tiny schools. Sunlight glinted down through breaks in the canopy of pine branches, and I thought those little creatures were like living sunshine as they moved about, as oblivious to my presence as the lady in the house singing to the radio. I was happy, too, no longer bored or feeling so alone. I had, yet again, been handed proof of the world's magic.

MY FATHER HUNTED PHEASANTS IN THE HUNDRED ACRES OF LUSH FOREST that surrounded our house. More often than game birds, he brought back their feathers and, at the end of summer, apples—a version of Red Delicious that I called *jungle apples* for their exotic appearance and also their origin. Those apples, which tasted sweet and warm from the sun's light, came from an orchard abandoned and forgotten years earlier. The woods had grown in around them, and only a few modern souls knew where to look to harvest their fruit.

That summer, I returned often to the secret goldfish pond where I sat at the edge of the crater and watched the goldfish for what seemed like hours. No one ever confronted me or told me to leave.

In September, the heat broke, and it grew colder. The summer residents left the lake, as they did after every Labor Day. In November, I hiked down the dirt road and to the goldfish pond for the first time in weeks, not knowing what I would find. The brook had iced over. So, too, had the goldfish pond. A thin, clear glaze covered its surface. But peering down from the edge, I saw colorful streaks darting out of focus beneath that window, the goldfish still going about their joyous activity despite the change in the season.

By December, snow had covered the ice and soon made travel down the dirt road, which wasn't plowed in winter, impossible. But in the spring, I found the ice melted, the small pond waking from the long cold. And in that space, the goldfish—at least some of them—had survived.

The year I turned 13, my family moved away from the big woods and lake to a house in the suburbs, where there was far less magic and almost no wonder.

But I never forgot the mysteries of my youth, not even now, five decades later, and I often search for reminders here in my house far from the former wilds of Windham. Like that boy who recognized the wizardry of the natural world just outside his front door, I appreciate the little yellow flowers that spill over the rock ledge in my backyard. They grow seemingly overnight following long, brutal northern New Hampshire winters. I eagerly await the spring sighting of a black bear moseying down my driveway, visible through the windows outside my writing room. I always, always remember to smile when I turn right at my driveway, turn right again, and there's Mount Washington, towering above the horizon like Fuji, Olympus, or Everest in my fertile imagination.

GREGORY L. NORRIS is a prolific writer of many genres, from science fiction to horror to space opera—and the occasional nature memoir. He lives in Berlin, New Hampshire.

The Unexpected Run-In *Gordon DuBois*

I steered my pickup truck on the narrow, snow-covered Success Pond Road near Berlin, New Hampshire, and told my friend Fran this story: Earlier in the winter, I had planned to hike the Journey's End Trail to the northern end of the Long Trail in Vermont. Driving in, my truck skidded off the narrow, snow-packed road and into a deep culvert. I could not dislodge the truck, so I called my son-in-law, who pulled me out with his plow truck.

Fran and I had just bushwhacked in three feet of snow, breaking through an icy crust, to the summit of Henry Hill. This obscure mound east of Berlin stands 2,032 feet high, something of a bump on the topographical map of New Hampshire. We had bushwhacked to the top because it's on a list of the 500 highest peaks in New Hampshire and, like many of these mountains, it has no trail. To reach the peak requires trekking through wilderness terrain using a map, compass, and GPS. From the summit of Henry, which had been recently logged, we could see almost the entire Mahoosuc Range stretched across the southern horizon: North Bald Cap, Mount Success, Goose Eye Mountain, North Peak, Fulling Mill Mountain, Mahoosuc Mountain, and Mahoosuc Notch to the extreme east.

After Fran and I returned to my truck, we munched on our sandwiches and discussed whether we had time that day to bushwhack Success Hill (2,190

feet). We mulled over the risks of going over to the peak using the snow-covered logging road, Success Pond Road. It had taken four hours to break trail for 2.5 miles up Henry. Did we have time for another trailless peak? We looked at our watches and decided we did, but we had to hurry.

I drove fast on the single-track logging road. We had to gain momentum to punch through fresh snow that had fallen the previous day, and skim over ice created by a recent rainfall. Temperatures were dropping to near zero that evening, and we knew we must be out of the woods before nightfall. As we plowed ahead, I wrapped my hands tightly around the steering wheel, while Fran calmly suggested, “Slow down . . . slow down.”

The snow here was deeper, and I struggled to keep the truck from sliding into a culvert. As the road climbed toward Success Pond, we suddenly noticed a bridge and a large sign, “ONE LANE BRIDGE.” I slowed the truck to a snail’s pace and carefully steered it onto the bridge, while Fran peered out the window looking at the rushing water below. There was no room for error. I thought to myself, “This is the end,” quoting the Doors’ song featured in the movie *Apocalypse Now*. I was praying that this wasn’t our day of reckoning.

We crept across the bridge, like a salamander crossing a roadway, and with a sigh of relief we felt the truck’s tires hit terra firma. We slowly rolled off the bridge, inching along the narrow, snow-covered road. A monstrous logging truck was heading straight toward us. The driver was barreling down the logging road (his road, really—maintained by his employers), and I could tell he expected me to move to the side. I couldn’t move the truck to the side of the road. There was no side of the road, just deep culverts. As the logging truck thundered forward, blaring its horn, brakes screeching, I jumped out of my vehicle waving my hands.

The truck slowly came to a stop. The driver jumped down from his rig and firmly suggested, “Just back up a few hundred yards, cross the bridge, and you’ll see a log landing, nothing to it. Turn into the landing, and I’ll be able to drive by without crushing your truck.” I said, “It sounds like a plan,” as I hoisted myself back into the driver’s seat. Fran looked stunned. His face turned white. We were within a few hundred yards of the bridge. I told him not to worry, and to forget what I had told him earlier about my rescue on Journey’s End Road.

I held my breath as I slowly backed my truck, keeping it squarely in the center of the narrow road. Fran leaned out the window, prudently monitoring my path, like a sailor in the crow’s nest of a sailing ship. He kept repeating, “Stay to the right, you have plenty of room, slow down, watch behind, don’t panic!” Following Fran’s commands, especially the one about not panicking, I

inched the truck nearer to the bridge. As we closed in on the bridge I became tenser, visualizing the truck tumbling into the fast-moving water below. There was little room for error. We were thirteen miles from Berlin with no cell service. It would be a long walk back to civilization if we didn't make it.

The log truck followed us as we backed up. I knew the driver was anxious to get his load to the mill before nightfall. When we made it over the bridge, we sighed in relief like deflating balloons. I backed into the log landing, and the monstrous truck roared by. The driver gave me the thumbs up, and I waved back, feeling proud of my feat. A few seconds later, we heard the rumble of a truck engine from behind. I looked in the rearview mirror and saw another massive log truck hurtling down the road leading out of the log yard. The driver blasted his horn, warning us to get out of the way. Thoughts again flashed across my eyes: We're going to be crushed! I was able to get the truck to the side, leaving just enough room for the log truck and its full load of timber to roar past. After pausing to reflect, we decided (with some trepidation) to carry on with our plan to bushwhack up Success Hill.

Many of the adventures Fran and I have shared on the way to these peaks offer unexpected bombshells. We have slogged in deep unbroken snow, broken through thick spindly fir, scrambled over and under blowdowns, scaled rock slides and ledges, been tripped up by hobblebush, and been scratched bloody by thorny blackberry canes. These are standard operating conditions when bushwhacking. This was my first time backing across a one-lane icy bridge to make room for a logging truck, though. A topo map doesn't provide "intel" about these obstructions. Over many years of bushwhacking, I've learned to always be prepared for the unexpected. How I respond becomes part of the experience. That was the lesson I learned that day.

GORDON DUBOIS is the author of *Paths Less Traveled: Tramping on Trails (and Sometimes Not) to Find New Hampshire's Special Places* (Dorrance Publishing, 2020). He wrote a column about his trail adventures for the *Laconia Daily Sun* for many years. He now lives in northern Vermont.

Books and Media



The AllTrails App

alltrails.com

Free for a basic version; \$29.99/year for the pro version.

IN HER 2019 *WAYFINDING: THE SCIENCE AND MYSTERY of How Humans Navigate the World* (St. Martin's Press), M. R. O'Connor tracks the growth of the GPS market, from 500 million in 2010, to 1.1 billion in 2014, to an estimated 7 billion in 2022. "What happens," she asks, "when we outsource navigation to a gadget?"

Although professional and more seasoned backcountry travelers are likely using the apps and hybrid approaches described by Scott Berkley starting on page 146, apps such as FatMap (free for limited access; \$29.99/year for upgrade), OnX Backcountry (free trial, then \$29.99/year to start, increasing to \$39.99), and AllTrails have sprung up for those more inclined towards, in O'Connor's words, the "relentless goal of greater efficiency and convenience."

AllTrails dominates the recreational market, and, to be clear, it is a market. In January 2021, AllTrails announced that it had reached 25 million registered users, including 1 million Pro upgrade subscribers (\$29.99/year or \$59.99/three years). AllTrails covers 190 countries on the seven continents and has published some 200,000 trail guides.

Calling AllTrails' products "published trail guides" is worthy of exploration. As *Appalachia* readers surely know, trail guides such as the Appalachian Mountain Club's *White Mountain Guide* are built from arduous, time-tested, and costly investments involving expert field scouting, paid authors, editors, and fact-checkers. Many guides, including AMC's, also are published in a not-for-profit context. Apps like AllTrails, by contrast, are profit-driven, designed to commodify both use and user.

In addition to collecting data from government agencies and private companies, AllTrails reportedly open sources and crowdsources its data. This means that locations and names, elevations, contour lines, slope shading, and other information can be incorrect or outdated. (An AllTrails spokesperson could not provide timely comment, saying the company was "heads-down" and planning.)

In a June 2021 critique for SectionHiker.com, “Why Do GPS Navigation Apps Lie?,” Philip Werner discusses this and other gaps. AllTrails relies on what he calls recreational-level GPS functions, rather than more accurate GPS receivers used by mapmakers, which cost more money. This means that distance calculations also can sometimes be incorrect.

Meanwhile, across apps and devices generally, the zoom function obfuscates critical surrounding detail, placing hikers at the center of a decontextualized universe. Each hiker’s blue dot stands as, in the words of *Underland* author and naturalist Robert Macfarlane, “cartographically speaking . . . a perfect example of solipsism.”* And solipsism, any seasoned trip leader will tell you, is a risky proposition when it comes to decision-making in the backcountry. (And, some scientists say, a risky proposition everywhere else, too. The neuroscientist Veronique Bohbot has opted out of satellite navigation devices altogether, for instance, because research suggests that reliance on GPS increases the risk of neurodegenerative disease.)

Finally, coverage is sketchy in many places, including the Whites, and, as Parker Peltzer, visitor services supervisor at AMC’s Pinkham Notch Visitor Center, said when we talked, “Cell phone batteries go fast when there’s limited service.”

The landscape is ever changing and maturing, however, and improvements in all these areas are sure to come. For now, as technologies and our relationships to them evolve, AllTrails—and any app, however sophisticated—is still most safely and responsibly used in tandem with waterproof maps, a magnetic compass, an extra battery pack, and an additional source of illumination.

“It’s great to know where you are and how far you have to go,” AMC’s Peltzer said. “But I have seen apps recommend campsites that are not legal, challenging hikes for beginners when there are more appropriate trails in the same vicinity, and doing trails going downhill that really should be done uphill.”

Although the future of how humans will make their way through the wilderness in the digital age is uncharted and unfolding, the present appears clear: What happens when we outsource navigation to a gadget is that more people get out and get lost, meaning the people whose job it is to find us are increasingly taxed.

Says Col. Kevin Jordan of New Hampshire Fish and Game, the agency responsible for rescues in the Whites, “Trail apps are responsible for getting

* Robert Macfarlane, “The Landscapes Inside Us,” *New York Review of Books*, July 1, 2021. [nybooks.com/articles/2021/07/01/wayfinding-landscapes-inside-us/](https://www.nybooks.com/articles/2021/07/01/wayfinding-landscapes-inside-us/)

people into trouble with wrong information. We need to be telling people publicly. If it were one or two people, it could be user error, but it's lots of people, so we want to get word out. I'm not telling people not to use it, but you can't beat a paper map." Until apps improve, Col. Jordan still recommends using AMC's *White Mountain Guide* (\$24.99) when in the Whites. "It's very accurate." [Editor's note: *The guide's publisher also publishes this journal.*]

In Macfarlane's words, "We might best imagine wayfinding not as a skill or art but as an ethic." Popular apps such as AllTrails are efficient, fun, convenient, and profitable, but they only work as well, and as responsibly, as their human companions.

—Catherine Buni

Trail Apps

Cal Topo

caltopo.com

Free for basic maps, \$20/year for offline mobile version, \$50/year for pro version, \$100/year for desktop version that includes GIS.

Avenza

avenzamaps.com

Individual maps available from many mapmakers ranging from no cost to \$5 or more; pro subscription, \$129/year.

Gaia GPS

gaiagps.com

Free to view maps with cell reception, \$39.99/year for premium to download maps.

Apps for Trail Adventure Planning

FatMap (*free, with monthly subscriptions for more features through app stores.*)

AllTrails (*free for basic version, \$29.99/year for pro version.*)

OnX Backcountry (*free for basic maps and weather, starting at \$29.99/year, then \$39.99/year for a premium subscription.*)

MAPS AS WE KNOW THEM ARE SQUARE, AND THEIR SQUARENESS IS A LARGE PART of their utility. They can be folded into neat rectangles and stuffed into accessible pockets for a hike or a ski tour, unfolded and spread out to contemplate a wider trajectory, or compacted to view an area in tighter detail. Once home, the same map can spread out on a wall or table decoratively as it waits for the next trip. Their squareness, however, is also their undoing: If you are to select, say, the Franconia–Pemigewasset map from among an AMC *White Mountain Guide* map set—as many readers of this journal surely have at one point or another—you run the risk of wandering, quite literally, off the map, into the next territory not covered by your chosen rectangle. You descend north on the Kedron Flume Trail into Crawford Notch and suddenly, whether you knew it or not, your itinerary is unmapped.

For most of its career, digital mapping for backcountry adventurers has aimed to bring the physical forms of all those square maps we know and love together at last, making for a kind of total cartography accessible from any smartphone—provided you have cell service, at least. This was the premise of CalTopo, the first digital mapping software I encountered, in my not-so-tech-savvy way, in the early 2010s. CalTopo, with its premise of superimposing Universal Transverse Mercator (UTM) grids onto digital scans of existing U.S. Geological Survey quadrants, now seems rather quaint, but back then, it was a revelation to outdoors people: Here was a way to plan routes from any internet-equipped computer, no print map set required.

It wasn't long before CalTopo's functions were making their way onto smaller screens by way of a mobile application called Avenza, which allowed the user to pre-plot routes on a computer using CalTopo's mapping feature, then download their route as a geospatial PDF to Avenza for use in concert with a GPS in the field. Much in the way of Google Maps for driving, smartphone-equipped hikers or skiers could locate themselves on Avenza, which would combine their phone's GPS accuracy with the map plot sourced from CalTopo.

Pulling geospatial PDFs from CalTopo to reference in the field with Avenza is, in effect, just an updating of the “create a map online, print it for reference” system that still survives, especially among those of a certain generation who aren't averse to using their desktops for research and would rather not pull their phones out for navigational purposes once on the trails. Even the millennial or Generation Xer who doesn't mind opening Avenza during, say, a ski tour that requires a tricky cliff pass to exit a summit snowfield has done the heavy lifting at home while making a tour plan with CalTopo on the computer. At home, that skier probably also consulted some combination of print

guidebooks, the internet, a local avalanche forecast, and several buddies on a group text about the next day's plan. This heavy emphasis on preplanning that the CalTopo–Avenza combination entails is precisely why it is so often used in outdoor learning environments such as avalanche courses. As much as Avenza helps the skier stay found once in the field, doing research to put together a tour plan on CalTopo puts them in the mindset, once out there, of avoiding terrain traps, staying out from under avalanche paths, and making go/no-go decisions at critical moments.

The skier, hiker, climber, or runner undertakes, in sitting at the computer, what gear reviewer Tam McTavish called “the ritual of plotting and planning a route.”* But what we, as outdoors people but also as phone users, seem to want more and more is not ritualized advanced planning, but on-the-spot decision-making with curated information at our fingertips.

Apps such as FatMap, AllTrails, and OnX Backcountry have sprung up to fill that space, offering not just a digital canvas on which to trace a route, but a fully realized platform to decide on a hike or ski tour at a moment's notice. The sheer volume of data and content involved in these apps, some crowdsourced and some professionally curated, astounds: Equipped with the FatMap app, hikers can enter the woods and, cell phone service permitting, decide their route mid-hike based on a three-dimensional visualization of the terrain ahead, real-time weather data, and even by seeing which friends of theirs have done the route recently. In the AllTrails app, which has achieved an unusual ubiquity among new hikers during the backcountry influx of the past two years, the focus swings from 3D visuals to user-generated content, allowing users to make decisions based on route popularity, average time of completion, and a Yelp-esque star-rating system. Using either app, one feels less dependent on an ability to make route selections or conditions assessments germane to the terrain in question and more focused on sifting the gold from the dross, much in the way of any modern social media system.

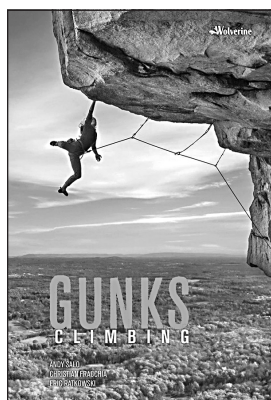
Both AllTrails and FatMap are emblematic of a new breed of what we might call deep-content mapping apps, which shift the focus away from using maps as tools for that central ritual of plotting and planning and toward an on-the-spot depth of data. How we plot and plan will differ from user to user. Although many folks prefer the simple, almost analog feel of the CalTopo interface, others prefer Gaia GPS, which merges different map-overlay

*Tam McTavish, “Gear Review: 3 Best GPS Map Apps,” outdoorproject.com/gear/gear-review-3-best-gps-map-apps, February 21, 2021.

features—for instance, toggling between the original USGS quad and an updated digital rendering of the landscape—with a brighter, more modern graphic and cleaner, less cluttered interface. While I'd recommend Gaia to a new hiker for its intuitive use and ease of setting up GPS tracks, I would instead suggest CalTopo for an old-school, AMC *White Mountain Guide*-toting backpacker just now starting to take a smartphone into the backcountry. And, while Gaia moves seamlessly from desktop or laptop to use on a smartphone at a trail junction at dusk, CalTopo's smartphone interface isn't quite there, and linking a geospatial PDF to Avenza is the best option.

As adventurers choose software to plan new trips and re-travel known paths, we need to think critically about how we are reestablishing our habits in a mapping world that has gone far beyond simply collating our entire *White Mountain Guide* map set in digital form. Living with the new breed of deep-content apps, we run the risk of under-preparation by shortcutting the established ritual of planning a route in advance. More than that, we risk circumscribing our understanding of traveling in the mountains, basing our actions not on our own breadth of creativity but on the deep specifics of an app's recommended trail, ridge, or ski line. By putting our navigational powers in the hands of the app, we risk turning our maps back into squares whose edges, literal or figurative, we will inevitably reach.

—Scott Berkley



Gunks Climbing

By Andy Salo, Christian Fracchia, and Eric Ratkowski
Wolverine, 2021, 465 pages.

ISBN 978-1-938393-38-9. Price: \$50 (hardcover).

IMAGINE AN EFFORT TO HYBRIDIZE A GIRAFFE and a platypus. That, more or less, is the achievement of this fusion of the traditional textual guide and rich historical archive, all within the format of a coffee table book. It weighs over two pounds, like a standard hardcover, and hence is unlikely to find a place in any climber's day pack. The \$50 price is

double that of its predecessors.

So what do we get from this genre-busting extravaganza? Good value, in my view. First, there's an entirely fresh organization of climbs into 21 sectors

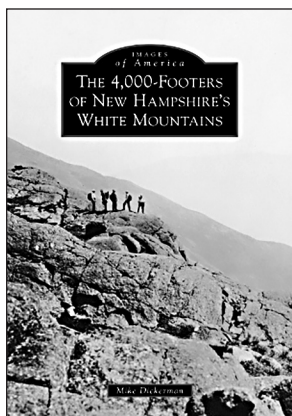
in the Trapps, by far the busiest cliff in the Shawangunks, or Gunks. Each cluster is titled after a well-known destination—such as Mac Wall, Drunkard’s Delight, High Exposure—and each supported with a full-page color high-resolution topographical map of amazing clarity and detail in the features of the rock, the climbs, belays, and anchors. In addition, a score of vivid full-page close-ups show contemporary climbers in action. Most pages feature Post-it-sized photos of birds, insects, porcupines, mushrooms, flowers, and so on—there, I presume, to remind the climber of the surround of nature.

The Near Trapps section is similarly divided into segments: the Near Nears, Fat City, and the Workout Wall. As with the Trapps, for each single climb there’s a reprint of the app’s start, accompanied by a sidebar of text, some of it boilerplate and much of it rewritten to update the information. Occasionally the authors go nuts on a heretofore obscure line. For example, an entire page has a blow-by-blow description of Easy Rider, the rarely climbed nine-pitch girdle traverse of the Nears, rated 5.9.

This book restores an old custom by including a written geology section and boasts by far the finest and most comprehensive history of the Gunks ever written. Finally, the book contains a magnificent array of archival material. Included are rare photo stills of such pioneers as Fritz Wiessner and Hans Kraus on the rocks and later developers like Henry Barber, John Stannard, John Bragg, Kevin Bein, Jack Mileski, Al Diamond, and others. What’s more, ten double-page hagiographies cover such heroes of yore as Rich Romano, Lynn Hill, Dick Williams, and Jeff Gruenberg. There’s hardly a grain of Gunks history that is not given its due. The unmistakable message to young climbers: These are the giants in whose footsteps you tread.

Such vast ambitions come at a price, however. After 455 pages, the authors run out of space without finishing their comprehensive guide. Their Trapps coverage stops with the kiss-off comment that the rest of the cliff (over 60 climbs in all) is generally of poor quality! Ditto the Nears, where they omit some 120 routes found in Todd Swain’s *Gunks Guide: Third Edition* (Chockstone Press, 1995). Millbrook is dropped entirely. The obvious effect, should this book be widely adopted, is compression and, inevitably, an increase in climber density, competition for routes, climber noise-making, wear and tear on trails, and so on. Moreover, this volume’s magnificent paean to this exceptional cliff and its climbers will surely lure new recruits to the sport. But then all guidebooks have a crowding effect. Build the roads and people will drive on them.

—John Thackray



The 4,000-Footers of New Hampshire's White Mountains

By Mike Dickerman

Arcadia Publishing, 2021, 128 pages.

ISBN: 978-1-4671-0667-2. Price: \$23.99

(paperback).

IF A PICTURE IS WORTH A THOUSAND WORDS, then Mike Dickerman's new book about his favorite stomping grounds approaches the content of the Oxford unabridged dictionary.

This book, part of Arcadia Publishing's Images of America series, contains 221 photographs that celebrate the 48 peaks as well as the countless men and women who have been climbing them for more than 200 years.

The vintage images are most captivating: a 1934 photo of two young boys taking a break at the former Garfield Pond Shelter; a picture of two men standing on a rickety observation tower on Carter Dome in 1905; a group of fashionably dressed members of the Appalachian Mountain Club outside the Perch; a birchbark shelter on Mount Adams, on July 4, 1893; a young man named Clyde Smith, loaded down with a 130-pound pack, hauling supplies to Madison Spring Hut in 1928.

Other photo captions offer interesting tidbits:

- Guests who stayed at the second Summit House atop Mount Washington, built in 1872–1873, included Presidents Ulysses S. Grant and Rutherford B. Hayes, author Harriet Beecher Stowe, circus showman P. T. Barnum, and former Union Army General George McClellan.
- Intensive logging in the late nineteenth and early twentieth centuries caused such a public outcry that a grassroots campaign helped preserve New Hampshire's remaining forestland.
- A 1959 landslide in Franconia Notch buried a section of the highway in 27 feet of debris.

Few are better qualified to chronicle the Granite State's signature range than Dickerman, who has written or edited more than a dozen books about the region, climbed all the summits in summer and winter, and formerly served on the Appalachian Mountain Club Four Thousand Footer Committee.

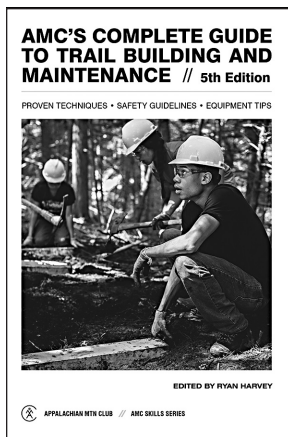
Reading his words and viewing the photos—collected from a variety of sources, including AMC, Randolph Mountain Club, Mount Washington Observatory, and Upper Pemigewasset Historical Society—brought back memories of my own climbs, with my son, Tom, of all the 4,000-footers in New England.

We are in good company. As Dickerman notes, nearly 16,000 hikers have climbed New Hampshire’s 4,000-footers. He adds that in recent years, the number of annual finishers has climbed to nearly 1,000 a year.

“The 4,000-footers, and many other lesser peaks, have played a major role in the development of the White Mountain region from a daunting wilderness to a recreational mecca,” Dickerman writes.

You needn’t hike to appreciate the pictures and Dickerman’s authoritative, informative text. All who cherish the White Mountains should take comfort in the fact that people continue to be drawn to these treasured peaks, and will do so, one hopes, in the centuries to come.

—*Steve Fagin*
Book Review Editor



AMC’s Complete Guide to Trail Building and Maintenance, Fifth Edition

Edited by Ryan Harvey

Appalachian Mountain Club Books, 2021,

250 pages.

ISBN: 978-1-628421-04-0. Price: \$21.95

(paperback).

Also available as an e-book.

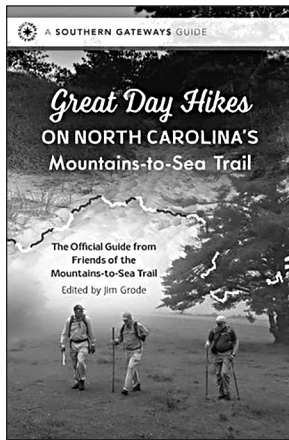
HIKING TRAILS DON’T SIMPLY SPRING FROM THE ground. They’re the result of planning, hard work, knowledge, and elbow grease. Fortunately, with proper instruction, anyone can learn to build and maintain safe, durable, and environmentally sound hiking trails that provide paths into nature for everyone.

Completely revised by Ryan Harvey, a professional forester and occasional contributor to *Appalachia*, with the collaboration of the Appalachian Mountain Club’s Trails Department staff, the fifth edition of this authoritative guide is rooted in AMC’s 140 years of experience building and maintaining 1,800

miles of trails from Maine to Washington, D.C., including the most miles of the Appalachian Trail of any organization.

Updated to reflect the latest thinking on trail resiliency in an age of climate change and the best practices in equitable, inclusive, accessible trail design and crew management, this new edition also provides expanded advice on planning, funding, design, construction, safety, and maintenance. Volunteer and professional trail crews, land trusts, outing clubs, and public agencies will find this trusted guide the essential reference for creating and maintaining recreational hiking and cross-country ski trails.

—*Tim Mudie*



Great Day Hikes on North Carolina's Mountains-to-Sea Trail

*By the Friends of the Mountains-to-Sea Trail,
edited by Jim Grode*

*University of North Carolina Press, 2020, 248 pages.
ISBN: 978-1-4696-5485-0. Price: \$24 (paperback).
Also available as an e-book.*

THIS GUIDE TO 40 DAY HIKES IS HELPING ME get to know the long-distance trail that crosses the length of North Carolina from the Smoky Mountains to the Outer Banks. I would love to thru-hike the 1,175 miles of the Mountains-to-Sea Trail, but with time restrictions and life's responsibilities, I'm unable to attempt such an endeavor. I've used this guide to cover a decent number of miles for fun and to help me train for my thru-hike of the Long Trail.

The first two hikes I tried were both near Asheville, where I live. Hike 6 is a 4.4-mile (one way) walk from Craven Gap to Tanbark Ridge Tunnel. Hike 7 is known as "the Craggies." It goes from Glassmine Falls Overlook to Graybeard Overlook, a 2.3-mile ridge walk with beautiful views. I am planning a solo hike in the Great Smokies section, which goes from Clingmans Dome to Fork Ridge Trail, because dogs aren't allowed on that part of the trail. And I will do hike 4—Graveyard Ridge and Skinny Dip Falls—just before my thru-hike, because that route is labeled "strenuous." I'm looking forward to it.

I'm impressed with how this book answers most, if not all, of the questions I may have within the first page of each chapter: how to get there, the

total miles, elevation, degree of difficulty, trail type (the surface you will be hiking on), and much more. And guess what? This guide will inform me which sections allow leashed dogs.

The detailed driving directions to the trailheads make them easy to find. The book also solves a problem some people have voiced to me: When hiking a trail for the first time, they get to the area but cannot find the trailhead. This guide will take you from the parking area to the start of your hike.

I'm a very visual person. You can tell me exactly where to go, with exact details, but my brain will mess it up somehow. This guide includes a separate map for each hike offered, so I'll know where it begins, loops around, and ends.

One of my favorite aspects of this guide is the overview section for each hike. It often includes the history of the area this section goes through.

When I hike, I often use GPS trail apps for backups, but I find that I don't need them at all when I'm using this easy and detailed book. This is a must-have guidebook if you wish to hike the best of the Mountains-to-Sea Trail.

—*Derick Lugo*

The Most Radical Thing You Can Do: The Best Political Essays from *Orion* Magazine

Edited by Christopher Cox

Orion Magazine, 2020, 269 pages.

ISBN: 978-1-913098-01-9. Price: \$15.

NEARLY FIFTEEN YEARS AGO, WHILE WORKING IN CONWAY, NEW HAMPSHIRE, I had the good fortune to teach an environmental philosophy course to a small group of precocious high school seniors. Last Christmas, one of these former students unexpectedly gave me a copy of this book, a collection of eighteen essays published in *Orion* magazine from 2002 to 2018. Like many of the important books of my life, it mysteriously found its way to me at just the right moment. I was in a pandemic-induced funk, brooding too much on the ruinous state of both our domestic politics and the global environment. Reading the inspiring essays in this volume, however, was like a shot to my spirit, an inoculation from the despair that threatened to overcome me.

Although the mainstays of this volume are surely the contributions of notable environmentalists such as Wendell Berry, Terry Tempest Williams, Bill McKibben, and Barbara Kingsolver, it also features the lively voices of more obscure and emerging writers. The essays are diverse in both style and

subject matter, but one motif that dominates the collection is the need for citizens to engage in energetic, principled, direct action to protect the environment. The most extreme of these prescriptions is laid out in Paul Kingsnorth's essay "Life versus the Machine," in which he calls for citizens to pick up their monkey wrenches to resist the onslaught of industrial civilization. The other essays, however, fall into a less controversial tradition of American dissent. For instance, Sandra Steingraber's humorous account of a night she spent in jail after being arrested for protesting hydraulic fracking near her home is of a piece with the kind of nonviolent civil disobedience made famous by Henry David Thoreau and Martin Luther King Jr. Although B. K. Loren's essay "Got Tape?" was first published in 2003, it seemed to me the most timely and relevant piece in the collection. Readers who are concerned with the toxic divisions of contemporary American political culture can take heart from her experience bringing together ordinary citizens from across the political spectrum to stop the construction of a big-box store on a beloved plot of open space in Colorado. Perhaps working together to protect the land we share offers us an opportunity to build the trust necessary to bridge our other chasm-like divides.

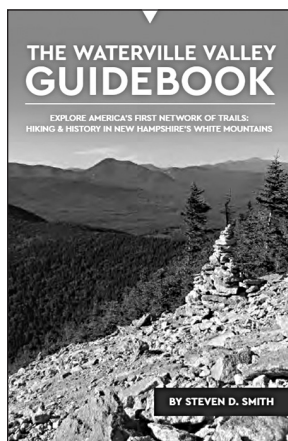
It was striking to see how many of these essays were shaped by profound criticisms of American foreign policy. Scott Russell Sanders's moving recollection of his Cold War youth and his opposition to the war in Vietnam reminds readers of the connection between the violence we inflict on each other and that which we inflict on the earth. But the specters of our more recent wars in Iraq and Afghanistan haunt the pages of this book. The collection begins with Barbara Kingsolver's essay "Small Wonder," a meditative plea for Americans to reconsider their retaliatory rage post-September 11. She uses an apocryphal story of a bear in Afghanistan that sheltered a lost child to suggest that perhaps our enemies are not what they appear to be and that there may yet be a chance to break free from seemingly inevitable cycles of violence.

Since the founding of the American republic, wary voices have suggested that should we succumb to imperial ambitions abroad, our own democratic political culture will be imperiled. Tapping into this venerable tradition, Terry Tempest Williams's "Engagement" reflects on both the Iraq War and the threat the fossil fuel industry poses to her beloved red rock country in Utah. She concludes that rural America is under attack from a creeping form of "domestic imperialism" that emanates from Washington, D.C., at the direction of powerful corporate interests. Several other essays in the volume grapple with the notion that rural America, and particularly Native

American reservations, function as internal colonies. Winona LaDuke's essay, for instance, recounts the struggle of the Ojibwe of the Great Lakes region to safeguard their wild rice from genetic modification at the hands of big agriculture. And the penultimate contribution to the collection salutes the courage of the long-suffering people of the Standing Rock Reservation to protect their water resources from the Dakota Access Pipeline.

Since its inception in the early 1980s, *Orion* has insisted that the environmental crisis is entangled with our larger political crisis. The essays in *The Most Radical Thing You Can Do* honor this tradition and urgently remind readers that restoring the health of our land and water will necessarily entail nursing our democracy back to health. Taken together, they suggest that the road back from our collective illness will not be easy because Americans have been politically sedentary for too long and the habits of citizenship have atrophied. The cure that they offer us demands nothing less than broad-based political participation and engaging earnestly with some of those with whom you disagree.

—David M. Chamberlain



The Waterville Valley Guidebook

By Steven D. Smith with Preston Conklin and Daniel Newton

Town of Waterville, 2020, 336 pages.

ISBN: 978-0-578-71388-5. Price: \$25 (paperback).

IT WOULD TAKE SOME EFFORT TO FIND TRAILS, river crossings, ponds, waterfalls, and scrambles in the White Mountains that Steven D. Smith has not written about. It would take even more effort to find those he has not climbed over or on. By now he has authored or co-authored numerous New Hampshire hiking books (my personal favorite is *Wandering through the White Mountains: A Hiker's Perspective* [Bondcliff Books, 2004]), and here is his latest enthused offering.

Those who spend their time chasing high footage on the Presidential Range peaks may not be as familiar with Waterville Valley to the south. Yet the country's first hiking trail network began here, predating the Civil War. In the 1850s, entrepreneurial innkeeper Nathaniel Greeley realized he could

entice his guests with the lure of a stroll (for those not inclined to stroll, he had a different lure: a bowling alley on the property). Almost 170 years later, 125 miles of trails crisscross the valley.

Smith describes trails, certainly, with helpful boldface assessments of how difficult each section of each route will be. But this guidebook also guides in more expansive ways. One chapter offers “History Hikes.” Others offer geology, birding, and flora, but also other advice on water bottles in winter (wrap one in a wool sock and pack it upside down to prevent freezing). Every chapter offers some kind of affection (the “familiar and abundant red squirrel (is a) mischievous sort . . . with a long, contemptuous chatter”) and appreciation (“Black Mountain Pond sparkles on a plateau 1,000 feet below”). Affection and appreciation really should be added to the list of ten hiking essentials.

A bit too heavy to stick in the pocket of a backpack, this book is for consulting before a trip and for review afterward. I was especially taken with the author’s photo, snapped by his hiking partner and wife: Standing in front of Osceola Brook, his expression is so open, so bright, and so inviting that I wanted to fall in behind him immediately. A reader will never know all that he knows. But here is a way to start.

—*Elissa Ely*

On the Run: Finding the Trail Home

By Catherine Doucette

Oregon State University Press, 2021, 132 pages.

ISBN: 978-0-87071-300-2. Price: \$22.95 (paperback).

“TELL ME,” MARY OLIVER ASKS IN ONE OF THE MOST WELL-LOVED POETIC questions, “what is it you plan to do with your one wild and precious life?” In this book, Doucette seems to respond. Her answer is in constant motion—on skis and skates, in kayaks, along running trails—as she chases a life plan from one corner of the world to another. We tend to be more interested in our own lives than those of anyone else, of course, but because of the good writing here, we follow along on what Doucette calls her “soul pursuit.”

Her pursuit started in New Hampshire’s White Mountains, where she grew up in her older brother’s hand-me-downs. “Peter’s life hung loosely from my shoulders and hips.” As a child, living four miles from the nearest town, she felt “something silent and selfish in winters,” when she could “hear the

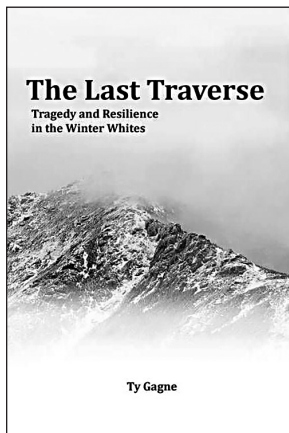
lake making new ice, heaving the surface upwards,” and her “sense of belonging to this place . . . built like the slips of ice that harden into a thick sheet.” It seemed a happy beginning.

Yet she left it again and again: for backcountry skiing in Alaska, Patagonia, and British Columbia; for teaching in Switzerland; for kayaking and cowboy wrangling in Oregon; and for writing. All this travel turned her outside view inward to reflection.

She writes harrowingly about a near-drowning in a wild Oregon river, when she rode “the earthy tang of water.” In the mountains of Patagonia, she observes the imminent death of a starving mare, and in Switzerland, folds origami cranes with grief-stricken students to commemorate a different death. Men come and go; it seems that none stay (at least, not by publishing date).

Plot needn't be the only purpose of an essay, and some of these essays have none in the formal sense, but that's fine. Nature is a both a noun and a verb, and Doucette is alert to the metaphors others use to answer Mary Oliver's question. “Potatoes are like people,” says a dignified farmer she visits on Presque Isle, Maine, who has spent decades harvesting them on a family farm. He has figured his precious life out, in a world where “tractors in storage lounge like tired animals,” and although Doucette would not choose this world for herself (she is ever on the move), she understands it enough to write. Mary Oliver would have liked them both.

—*Elissa Ely*



The Last Traverse: Tragedy and Resilience in the Winter Whites

By Ty Gagne

TMC Books LLC, 2020. 285 pages.

ISBN: 978-1-7349308-3-2 (paperback).

I PURCHASED THIS BOOK WITH TREPIDATION AT Steve Smith's Mountain Wanderer bookshop in Lincoln, New Hampshire. That's because I knew this one would be as compelling as Gagne's prior book, *Where You'll Find Me: Risk, Decisions, and the Last Climb of Kate Matrosova* (TMC Books, 2017). I was sure that his masterful storytelling and meticulous research would put me in the shoes of the two victims,

suffering in the wind and cold on the Franconia Ridge. I would feel, “There but for the grace of God go I,” with resulting loss of sleep.

Fred Frederickson and James Osborne were New Hampshire residents and White Mountain regulars (although this was Osborne’s first winter hike). Both were drivers for Concord Coach, and I even wondered if I had been their passenger on airport trips.

Gagne tracks down every detail and includes relevant research and expert opinions. He clearly has a gift of empathy, as shown in his interviews with the multiple rescue agencies involved, Osborne, and Frederickson’s family members. Gagne’s caring and respect for his subjects comes through on every page.

As he did in his previous book, Gagne includes the step-by-step details of how the hikers got into trouble and how the complicated search-and-rescue effort began when the pair failed to appear the next day at work. Gagne details rescuers’ heroic efforts and high levels of preparation and self-care. Osborne’s core temperature when he arrived at Littleton Hospital was 76.28 Fahrenheit, making him one of the coldest people to have ever survived. I appreciated the details of the medical intervention, and the tribute to the late Dr. Harry McDade, who pioneered cold injury treatments.

Gagne lays out the facts and mostly lets readers draw their own conclusions, but I think the book would have been stronger with a short analysis at the end, similar to what we include in this journal’s Accidents section.

The pair planned to ascend the Falling Waters Trail to Little Haystack, cross the open ridge over Lincoln and Lafayette, and descend the Old Bridle Path. Despite the severe afternoon weather forecast, I wouldn’t fault the pair for starting out. The challenge is to know when to turn around.

Using Mount Washington Observatory data, Gagne meticulously detailed the 70-MPH winds, whiteout conditions, and dropping temperatures that struck the pair on the exposed ridge. Frederickson suggested retreating the half mile or so back to Little Haystack and the safety of treeline. Unfortunately, as it turned out, Frederickson deferred to the less experienced Osborne’s plea to get out of the wind quickly and bivouac in a rock crevice. Sadly, the high winds and cold continued into the next day, and the pair were unable to safely retreat in their severely hypothermic state.

This is a gripping story that will lead to personal reflection on how its lessons can prevent future tragedies. Don’t miss this book, even (especially?) if costs you some sleep.

—*Douglass Teschner*

The Ubiquitous Cell Phone

OUR SUMMER/FALL 2022 ISSUE WILL ASK WHAT IT MEANS TO LIVE WITH nearly ubiquitous cell phone service in wilderness areas. It's hard to disengage from technology, even in wild areas. Perhaps explorers can never experience true wildness in areas of cell service. Those who don't take technology along might fall into the category of antagonist. Yet—as our Accidents reports of the past decade or so have shown—a cell phone call can sometimes save a life. Phones also can leave adventurers with a dangerous sense of security. They might think that rescuers could reach them fast if they can call them quickly.

Stephen Kurczy will write about why he does not use a cell phone, even on his hiking trips, and how he handles the reactions to that decision. Other writers will consider the time when long wilderness trips lacked any kind of connectivity, whether cell phones truly are a safety tool, and other ethical questions about technology and wild places.

Also next time, Walt McLaughlin will take us with him onto the Cohos Trail in northern New Hampshire, when he pushed through a difficult hike just after his mother's death. William Geller will return with a history essay about mysterious place names in the Pemigewasset Wilderness of New Hampshire's White Mountains.

Kevin Berend will detail research into southern plants that could move northward as the climate warms. Our newest department, Valley and Skyline Sketches, returns with tales of a father-son hike, trail workers in Alaska, and dining outdoors.

Our runner-up in last year's Waterman Fund contest, Claire Dumont, will reflect on what a thru-hike of the Long Trail revealed about wilderness during the COVID-19 pandemic. Enter our next Waterman Fund Essay Contest. Are you an emerging writer who explores and thinks about wild places? Visit watermanfund.org for the latest details of how to enter the next contest.

Our back issues now are available at digitalcommons.dartmouth.edu/appalachia/, thanks to a partnership with Dartmouth College. Visit us on our Twitter account @AppalachiaJourn.

We look forward to seeing you here next time.

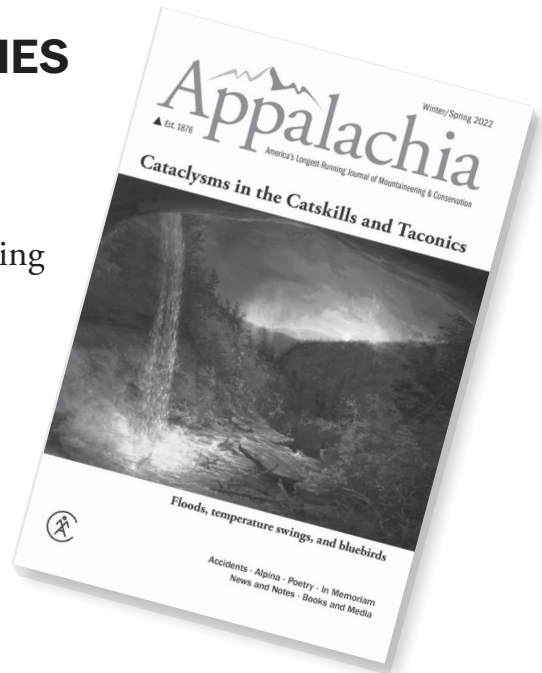
—Christine Woodside
chris@chriswoodside.com

“I started reading Appalachia for the accident reports, but I kept reading for the great features.”—Mohamed Ellozy, subscriber

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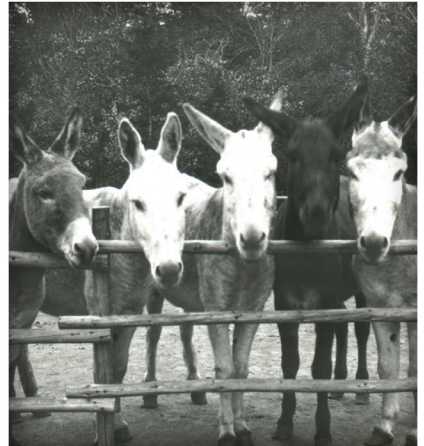
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