



THE WAY OF NATURAL HISTORY

EDITED BY THOMAS LOWE FLEISCHNER

how much thinner would the experience be? What a record we might have of the world's hidden beauty if field scientists and poets routinely spent time in one another's company.

A young tree, broken and caught between two others, creaks to the rhythm of the wind. How well the owl must know this sound. Does she anticipate the crash of its falling? What is the consciousness of a spotted owl? There she perches perceiving us, and here we sit perceiving her. We exchange the long, slow interspecies stare—no fear, no threat, only the confusing mystery of the Other. Steve knows her language well enough to speak a few words: the location call, the bark of aggression. Perhaps that means she thinks we are owls. We do not look like owls. But we do, briefly, behave like owls, catching and offering prey, being still, and turning our eyes to the forest.

"What are you?"

"What are you?"

That's the conversation we have with our eyes.

"What will you do next?"

"What will you do next?"

I keep falling into the owl's eyes.

Then we stand up and hike down from that high place.

An idea common to science and poetry is that an experiment is an act the outcome of which is unknown. In science the goal is to add to a body of knowledge. In poetry the goal is to add to a body of reflection, to share the innerness of human life in ways that helps us to get the drift of how the world is working. Who can know what the outcome will be of such practices when poet and scientist attempt to engage in them side by side, not one in service to the other, but both in service to the promise of discovery and connection?

ROBIN WALL KIMMERER

Witness to the Rain

This Oregon rain at the start of winter falls steadily in sheets of gray. Falling unimpeded, it makes a gentle hiss. You'd think that rain falls equally over the land, but it doesn't. The rhythm and the tempo change markedly from place to place. As I stand in a tangle of salal and Oregon grape, the rain strikes a *ratatatat* on the hard, shiny leaves, the snare drum of sclerophylls. Rhododendron leaves, broad and flat, receive the rain with a smack that makes the leaf bounce and rebound, dancing in the downpour. Beneath this massive hemlock, the drops are fewer, and the craggy trunk knows rain as dribbles down its furrows. On bare soil the rain splats on the clay, while fir needles swallow it up with an audible gulp.

In contrast, the fall of rain on moss is nearly silent. I kneel among them, sinking into their softness to watch and to listen. The drops are so quick that my eye is always chasing, but not catching, their arrival. At last, by narrowing my gaze to just a single frond and staring, I see it. The impact bows the shoot downward, but the drop itself vanishes. It is soundless. There is no drip or splash, but I can see the front of water move, darken-

ing the stem as it is drunk in and silently dissipated among the tiny shingled leaves.

Most other places I know, water is a discrete entity. It is hemmed in by well-defined boundaries: lakeshores, stream banks, or the great rocky coastline. You can stand at its edge and say "This is water" and "This is land." Those fish and those tadpoles are of the water realm; these trees, these mosses, and these four-leggeds are creatures of the land. But here in these misty forests those edges seem to blur: rain so fine and constant as to be indistinguishable from air, cedars wrapped with cloud so dense that only their outline forms emerge. Water doesn't seem to make a clear distinction between gaseous phase and liquid. The air merely touches a leaf or a tendril of my hair, and suddenly a drop appears.

Even the river, Lookout Creek, doesn't respect clear boundaries. The surface flow tumbles and slides down the main channel, where a cocky black dipper rides the current between pools. Fred Swanson, a hydrologist here at the Andrews Experimental Forest, has told me of another stream, the invisible shadow of Lookout Creek. This water, the "hyporheic flow," moves under the stream, through cobble beds and old sandbars. It edges up the toe slope to the forest, a wide unseen river that flows beneath the eddies and the splash, a deep invisible river, known only to roots and rocks, intimate beyond our knowing. It is hyporheic flow that I'm listening for.

Wandering along the banks of Lookout Creek, I lean up against an old cedar with my back nestled in its curves and try to imagine the currents below. But all I sense is water dripping down my neck. Every branch is weighted down with mossy curtains of *Isoetes*, and droplets hang from the tangled ends, just as they hang from my hair. When I bend my head over, I can see them both. But the droplets on *Isoetes* are far bigger

than the drops on my bangs. In fact, the drops of moss water seem larger than any I know, and they hang, swelling and pregnant with gravity, far longer than the drops on me, or on twigs or bark. They dangle and rotate, reflecting the entire forest and a woman in a bright yellow slicker.

I'm not sure I can trust what I'm seeing. I wish I had a set of calipers, so that I could measure the drops of moss water and see if they really are bigger. I take refuge in the play of the scientist part of myself, spinning out hypotheses. Perhaps the high humidity around moss makes the drops last longer? Maybe in residence among mosses, raindrops absorb some property that increases their surface tension, making it stronger against the pull of gravity? Perhaps it's just an illusion, like how the full moon looks so much bigger at the horizon. Does the diminutive scale of the moss leaves make the drops appear larger? After hours in the penetrating rain, I am suddenly damp and chilled. The path back to the cabin is a temptation. I could so easily retreat to tea and dry clothes, but I cannot pull myself away. However alluring the thought of warmth, there is no substitute for standing in the rain to waken every sense—senses that are muted within four walls, where my attention would be on *me*, instead of all that is more than me. Inside looking out, I could not bear the loneliness of being dry in a wet world. Here in the rainforest, I don't want to just be a witness to rain, passive and protected. I want to be part of the downpour, to be soaked, along with the dark hummus that squishes underfoot. I wish that I could stand like a shaggy cedar with rain seeping into my bark, that water could dissolve the barrier between us. I want to feel what they feel and know what they know.

But I am not a cedar, and I am cold. Surely there are places where the warm-blooded among us take refuge. I poke my head into an undercut bank by the stream, but its back wall runs with

rivulets. No shelter there, nor in the hollow of a tree-fall where I hoped the upturned roots would slow the rain. A spiderweb hangs between two dangling roots. Even this is filled, a silken hammock cradling a spoonful of water. My hopes rise where the vine maples are bent low to form a moss-draped dome. I push aside the gauzy curtain and stoop to enter the tiny dark room, roofed with layers of moss. It's quiet and windless, just big enough for one. The light comes through the moss-woven roof like pinprick stars, but so do the drips.

As I walk back to the trail, a giant log blocks the way. It has fallen from the toe slope out into the river, where its branches drag in the rising current. Its top rests on the opposite shore. Going under looks easier than going over, so I drop to my hands and knees. And here I find my dry place. The ground mosses are brown and dry, the soil soft and powdery. The log makes a roof overhead more than a meter wide in the wedge-shaped space where the slope falls away to the stream. I can stretch out my legs, the slope angle perfectly accommodating the length of my back. I let my head rest in a dry nest of *Hylacomium* moss and sigh in contentment. My breath forms a cloud above me, up where brown tufts of moss still cling to the furrowed bark, embroidered with spiderwebs and wisps of lichen that haven't seen the sun since this tree became a log. This log inches above my face weighs many tons. All that keeps it from seeking its natural angle of repose upon my chest is a hinge of fractured wood at the stump and cracked branches propped on the other side of the stream. Those supports could give way at any moment. And one day they will. But given the fast tempo of raindrops and the slow tempo of tree-falls, I feel safe in the moment. The pace of my resting and the pace of its falling run on different clocks.

Time as objective reality has never made much sense to me. It's only what happens that matters. How can minutes and years,

devices of our own creation, mean the same thing to gnats and to cedars? Two hundred years is young for the trees, whose tops this morning are hung with mist. It's an eyeblink of time for the river and nothing at all for the rocks. The rocks and the river and these very same trees will likely be here in another two hundred years, if we take good care. As for me and that chipmunk and the cloud of gnats milling in a shaft of sunlight, we will have moved on.

If there is meaning in the past and in the imagined future, it is captured in the moment. When you have all the time in the world, you can spend it, not on going somewhere, but on being where you are. So I stretch out, close my eyes, and listen to the rain.

The cushiony moss keeps me warm and dry, and I roll over on my elbow to look out on the wet world. The drops fall heavily on a patch of *Mnium insignne*, right at eye level. This moss stands upright, nearly two inches tall. The leaves are broad and rounded, like a fig tree in miniature. One leaf among the many draws my eye by its long tapered tip, so unlike the rounded edges of the others. As I lean in closer, my head lines up with the drip line of the log, and drips trickle down my neck, but no matter. The threadlike tip of the leaf is moving, animated in a most-un-plantlike fashion. The thread seems firmly anchored to the apex of the moss leaf, an extension of its pelucid green. But the tip is circling, waving in the air as if it is searching for something. Its motion reminds me of the way inchworms will rise up on their hind sucker feet and wave their long bodies about until they encounter the adjacent twig, to which they then attach their forelegs, release their back legs, and arch across the gulf of empty space. But this is no many-legged caterpillar; it is a shiny green filament, a moss thread animal, lit from within like a fiber-optic element. As I watch, the wandering thread touches

upon a leaf just millimeters away. It seems to tap several times at the new leaf, and then, as if reassured, it stretches itself out across the gap. It holds like a taut green cable, more than doubling its initial length. For just a moment, the two mosses are bridged by the shining green thread; then green light flows like a river across the bridge and vanishes, lost in the greenness of the moss. Is that not grace, to see an animal made of green light and water, a mere thread of a being who, like me, has gone walking in the rain?

Down by the river, I stand and listen. The sound of individual raindrops is lost in the foaming white rush and smooth glide over rock. If you didn't know better, you might not recognize raindrops and rivers as kin, so different are the particular and the collective. I lean over a still pool, reach my hand in, and let the drops fall from my fingers, just to be sure.

Alder leaves lie fallen on the gravel, their drying edges upturned to form leafy cups. Rainwater has pooled in several leaves and is stained red-brown, like tea, with tannins leached from the leaf. Strands of lichen lie scattered among them where the wind has torn them free. Suddenly I see the experiment I need to test my hypothesis; the materials are neatly laid out before me. I find two strands of lichen, equal in size and length, and blot them on my flannel shirt inside my raincoat. One strand I place in the leaf cup of red alder tea; the other I soak in a pool of pure rainwater. Slowly I lift them both up, side by side, and watch the droplets form at the ends of the moss strands. Sure enough, they are different. The plain water forms small, rapid drops that seem in a hurry to let go. But the droplets steeped in alder water grow large, heavy, and hang for a long moment before gravity pulls them away. I feel the grin spreading over my face with the "Aha!" moment. There *are* different kinds of drops,

depending on the relationship between the water and the plant. If tannin-rich alder water increases the size of the drops, might not water seeping through a long curtain of moss also pick up tannins, making the big strong drops I thought I was seeing? One thing I've learned in the woods is that there is no such thing as random. Everything is steeped in meaning, colored by relationships, one with another.

Where new gravel meets old shore, a still pool has formed beneath the overhanging trees. Cut off from the main channel, it fills from the rise of hyporheic flow, the water rising from below to fill the shallow basin, where summer daisies look surprised to be submerged two feet deep now that the rains have come. In summer, this pool was a flowery swale; now it is a sunken meadow that tells of the river's transition from low braided channel to the full banks of winter. It is a different river in August than in October. You'd have to stand here a long time to know them both, and even longer to know the river that was here before the coming of the gravel bar, and the river that will be after it leaves.

Perhaps we cannot know the river. But what about the drops? I stand for a long time, by the still backwater pool and listen. It is a mirror for the falling rain, and is textured all over by its fine and steady fall. I strain to hear only rain whisper among the many sounds, and find that I can. It arrives with a high sprickley sound, a *shurring* so light that it only blurs the glassy surface but does not disrupt the reflection. The pool is overhung with branches of vine maple reaching from the shore, a low spray of hemlock, and from the gravel bar, alder stems incline over the edge. Water falls from each of these trees into the pool, each to its own rhythm. The hemlock makes a rapid pulse. Water

collects on every needle, but travels to the branch tips before falling, running to the drip line, where it releases in a steady *pit, pit, pit, pit, pit*, drawing a dotted line in the water below.

Maple stems shed their water much differently. The drips from maple are big and heavy. I watch them form and then plummet to the surface of the pool. They hit with such force that the drop makes a deep and hollow sound. *Blonk*. The rebound causes the water to jump from the surface, so it looks as if it were erupting from below. There are sporadic blinks beneath the maples. Why is this drop so different from the hemlock drips? I step in close to watch the way that water moves on maple. The drops don't form just anywhere along the stem. They arise mostly where past years' bud scars have formed a tiny ridge. The rainwater sheets over the smooth green bark and gets dammed up behind the wall of the bud scar. It swells and gathers until it tops the little dam and spills over, tumbling in a massive drop to the water below. *Blonk*.

Sshhh from rain, *pitpitpit* from hemlock, *blonk* from maple, and finally *popp* of falling alder water. Alder drops make a slow music. It takes time for fine rain to traverse the scabrous rough surface of an alder leaf. It's not as big as a maple drop, not big enough to splash, but its *popp* ripples the surface and sends out concentric rings. I close my eyes and listen to the voices of the rain.

The reflecting surface of the pool is textured with their signatures, each one different in pace and resonance. Every drip, it seems, is changed by its relationship with life, whether it encounters moss or maple or fir bark or my hair. And we think of it as simply rain, as if it were one thing, as if we understood it. I think that moss knows rain better than we do, and so do maples. Maybe there is no such thing as rain; there are only raindrops, each with its own story.

Listening to rain, time disappears. If time is measured by the period between events, alder drip time is different from maple drop. This forest is textured with different kinds of time, as the surface of the pool is dimpled with different kinds of rain. Fir needles fall with the high-frequency hiss of rain, branches fall with the *blonk* of big drops, and trees with a rare but thunderous thud. Rare, unless you measure time like a river. And we think of it as simply time, as if it were one thing, as if we understood it. Maybe there is no such thing as time; there are only moments, each with its own story.

I can see my face reflected in a dangling drop. The fish-eye lens gives me a giant forehead and tiny ears. I suppose that's the way we are as humans, thinking too much and listening too little. By paying attention we acknowledge that we have something to learn from intelligences not our own. By listening, standing witness, we create an openness to the world in which the boundaries between us can dissolve in a raindrop. The drop swells on the tip of a cedar, and I catch it on my tongue like a blessing.