

A hymn of love to the world.

—ELIZABETH GILBERT

BRAIDING SWEETGRASS



Indigenous Wisdom, Scientific Knowledge,
and the Teachings of Plants

ROBIN WALL KIMMERER

BRAIDING SWEETGRASS

Also by Robin Wall Kimmerer

Gathering Moss

BRAIDING SWEETGRASS

Robin Wall Kimmerer



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For all the Keepers of the Fire
my parents
my daughters
and my grandchildren
yet to join us in this beautiful place

CONTENTS

Preface	ix
Planting Sweetgrass	
Skywoman Falling	3
The Council of Pecans	11
The Gift of Strawberries	22
An Offering	33
Asters and Goldenrod	39
Learning the Grammar of Animacy	48
Tending Sweetgrass	
Maple Sugar Moon	63
Witch Hazel	72
A Mother's Work	82
The Consolation of Water Lilies	98
Allegiance to Gratitude	105
Picking Sweetgrass	
Epiphany in the Beans	121
The Three Sisters	128
<i>Wisgaak Gokpenagen</i> : A Black Ash Basket	141
<i>Mishkos Kenomagwen</i> : The Teachings of Grass	156
Maple Nation: A Citizenship Guide	167
The Honorable Harvest	175

Braiding Sweetgrass

In the Footsteps of Nanabozho:

Becoming Indigenous to Place	205
The Sound of Silverbells	216
Sitting in a Circle	223
Burning Cascade Head	241
Putting Down Roots	254
<i>Umbilicaria</i> : The Belly Button of the World	268
Old-Growth Children	277
Witness to the Rain	293

Burning Sweetgrass

Windigo Footprints	303
The Sacred and the Superfund	310
People of Corn, People of Light	341
Collateral Damage	348
<i>Shkítagen</i> : People of the Seventh Fire	360
Defeating Windigo	374

Epilogue: Returning the Gift	380
------------------------------	-----

Notes	385
-------	-----

Sources	387
---------	-----

Acknowledgments	389
-----------------	-----

Preface

Hold out your hands and let me lay upon them a sheaf of freshly picked sweetgrass, loose and flowing, like newly washed hair. Golden green and glossy above, the stems are banded with purple and white where they meet the ground. Hold the bundle up to your nose. Find the fragrance of honeyed vanilla over the scent of river water and black earth and you understand its scientific name: *Hierochloa odorata*, meaning the fragrant, holy grass. In our language it is called *wiingaashk*, the sweet-smelling hair of Mother Earth. Breathe it in and you start to remember things you didn't know you'd forgotten.

A sheaf of sweetgrass, bound at the end and divided into thirds, is ready to braid. In braiding sweetgrass—so that it is smooth, glossy, and worthy of the gift—a certain amount of tension is needed. As any little girl with tight braids will tell you, you have to pull a bit. Of course you can do it yourself—by tying one end to a chair, or by holding it in your teeth and braiding backward away from yourself—but the sweetest way is to have someone else hold the end so that you pull gently against each other, all the while leaning in, head to head, chatting and laughing, watching each other's hands, one holding steady while the other shifts the slim bundles over one another, each in its turn. Linked by sweetgrass, there is reciprocity between you, linked by sweetgrass, the holder as vital as the braider. The braid becomes finer and thinner as you near the end, until you're braiding individual blades of grass, and then you tie it off.

Will you hold the end of the bundle while I braid? Hands joined

by grass, can we bend our heads together and make a braid to honor the earth? And then I'll hold it for you, while you braid, too.

I could hand you a braid of sweetgrass, as thick and shining as the plait that hung down my grandmother's back. But it is not mine to give, nor yours to take. *Wiingaashk* belongs to herself. So I offer, in its place, a braid of stories meant to heal our relationship with the world. This braid is woven from three strands: indigenous ways of knowing, scientific knowledge, and the story of an Anishinabekwe scientist trying to bring them together in service to what matters most. It is an intertwining of science, spirit, and story—old stories and new ones that can be medicine for our broken relationship with earth, a pharmacopoeia of healing stories that allow us to imagine a different relationship, in which people and land are good medicine for each other.

BRAIDING SWEETGRASS

Planting Sweetgrass

¶ Sweetgrass is best planted not by seed, but by putting roots directly in the ground. Thus the plant is passed from hand to earth to hand across years and generations. Its favored habitat is sunny, well-watered meadows. It thrives along disturbed edges.

SKYWOMAN FALLING

In winter, when the green earth lies resting beneath a blanket of snow, this is the time for storytelling. The storytellers begin by calling upon those who came before who passed the stories down to us, for we are only messengers.

In the beginning there was the Skyworld.

She fell like a maple seed, pirouetting on an autumn breeze.* A column of light streamed from a hole in the Skyworld, marking her path where only darkness had been before. It took her a long time to fall. In fear, or maybe hope, she clutched a bundle tightly in her hand.

Hurling downward, she saw only dark water below. But in that emptiness there were many eyes gazing up at the sudden shaft of light. They saw there a small object, a mere dust mote in the beam. As it grew closer, they could see that it was a woman, arms outstretched, long black hair billowing behind as she spiraled toward them.

The geese nodded at one another and rose together from the water in a wave of goose music. She felt the beat of their wings as they flew beneath to break her fall. Far from the only home she'd ever known, she caught her breath at the warm embrace of soft feathers as they gently carried her downward. And so it began.

The geese could not hold the woman above the water for much longer, so they called a council to decide what to do. Resting on their wings, she saw them all gather: loons, otters, swans, beavers, fish of all kinds. A great turtle floated in their midst and offered his back for her

* Adapted from oral tradition and Shenandoah and George, 1988.

to rest upon. Gratefully, she stepped from the goose wings onto the dome of his shell. The others understood that she needed land for her home and discussed how they might serve her need. The deep divers among them had heard of mud at the bottom of the water and agreed to go find some.

Loon dove first, but the distance was too far and after a long while he surfaced with nothing to show for his efforts. One by one, the other animals offered to help—Otter, Beaver, Sturgeon—but the depth, the darkness, and the pressures were too great for even the strongest of swimmers. They returned gasping for air with their heads ringing. Some did not return at all. Soon only little Muskrat was left, the weakest diver of all. He volunteered to go while the others looked on doubtfully. His small legs flailed as he worked his way downward and he was gone a very long time.

They waited and waited for him to return, fearing the worst for their relative, and, before long, a stream of bubbles rose with the small, limp body of the muskrat. He had given his life to aid this helpless human. But then the others noticed that his paw was tightly clenched and, when they opened it, there was a small handful of mud. Turtle said, “Here, put it on my back and I will hold it.”

Skywoman bent and spread the mud with her hands across the shell of the turtle. Moved by the extraordinary gifts of the animals, she sang in thanksgiving and then began to dance, her feet caressing the earth. The land grew and grew as she danced her thanks, from the dab of mud on Turtle’s back until the whole earth was made. Not by Skywoman alone, but from the alchemy of all the animals’ gifts coupled with her deep gratitude. Together they formed what we know today as Turtle Island, our home.

Like any good guest, Skywoman had not come empty-handed. The bundle was still clutched in her hand. When she toppled from the hole in the Skyworld she had reached out to grab onto the Tree of Life that grew there. In her grasp were branches—fruits and seeds of all kinds of plants. These she scattered onto the new ground and carefully tended each one until the world turned from brown to green.

Sunlight streamed through the hole from the Skyworld, allowing the seeds to flourish. Wild grasses, flowers, trees, and medicines spread everywhere. And now that the animals, too, had plenty to eat, many came to live with her on Turtle Island.

Our stories say that of all the plants, *wiingaashk*, or sweetgrass, was the very first to grow on the earth, its fragrance a sweet memory of Skywoman's hand. Accordingly, it is honored as one of the four sacred plants of my people. Breathe in its scent and you start to remember things you didn't know you'd forgotten. Our elders say that ceremonies are the way we "remember to remember," and so sweetgrass is a powerful ceremonial plant cherished by many indigenous nations. It is also used to make beautiful baskets. Both medicine and a relative, its value is both material and spiritual.

There is such tenderness in braiding the hair of someone you love. Kindness and something more flow between the braider and the braided, the two connected by the cord of the plait. *Wiingaashk* waves in strands, long and shining like a woman's freshly washed hair. And so we say it is the flowing hair of Mother Earth. When we braid sweetgrass, we are braiding the hair of Mother Earth, showing her our loving attention, our care for her beauty and well-being, in gratitude for all she has given us. Children hearing the Skywoman story from birth know in their bones the responsibility that flows between humans and the earth.

The story of Skywoman's journey is so rich and glittering it feels to me like a deep bowl of celestial blue from which I could drink again and again. It holds our beliefs, our history, our relationships. Looking into that starry bowl, I see images swirling so fluidly that the past and the present become as one. Images of Skywoman speak not just of where we came from, but also of how we can go forward.

I have Bruce King's portrait of Skywoman, *Moment in Flight*, hanging in my lab. Floating to earth with her handful of seeds and flowers, she

looks down on my microscopes and data loggers. It might seem an odd juxtaposition, but to me she belongs there. As a writer, a scientist, and a carrier of Skywoman's story, I sit at the feet of my elder teachers listening for their songs.

On Mondays, Wednesdays, and Fridays at 9:35 a.m., I am usually in a lecture hall at the university, expounding about botany and ecology—trying, in short, to explain to my students how Skywoman's gardens, known by some as “global ecosystems,” function. One otherwise unremarkable morning I gave the students in my General Ecology class a survey. Among other things, they were asked to rate their understanding of the negative interactions between humans and the environment. Nearly every one of the two hundred students said confidently that humans and nature are a bad mix. These were third-year students who had selected a career in environmental protection, so the response was, in a way, not very surprising. They were well schooled in the mechanics of climate change, toxins in the land and water, and the crisis of habitat loss. Later in the survey, they were asked to rate their knowledge of positive interactions between people and land. The median response was “none.”

I was stunned. How is it possible that in twenty years of education they cannot think of any beneficial relationships between people and the environment? Perhaps the negative examples they see every day—brownfields, factory farms, suburban sprawl—truncated their ability to see some good between humans and the earth. As the land becomes impoverished, so too does the scope of their vision. When we talked about this after class, I realized that they could not even imagine what beneficial relations between their species and others might look like. How can we begin to move toward ecological and cultural sustainability if we cannot even imagine what the path feels like? If we can't imagine the generosity of geese? These students were not raised on the story of Skywoman.

On one side of the world were people whose relationship with the living world was shaped by Skywoman, who created a garden for the

well-being of all. On the other side was another woman with a garden and a tree. But for tasting its fruit, she was banished from the garden and the gates clanged shut behind her. That mother of men was made to wander in the wilderness and earn her bread by the sweat of her brow, not by filling her mouth with the sweet juicy fruits that bend the branches low. In order to eat, she was instructed to subdue the wilderness into which she was cast.

Same species, same earth, different stories. Like Creation stories everywhere, cosmologies are a source of identity and orientation to the world. They tell us who we are. We are inevitably shaped by them no matter how distant they may be from our consciousness. One story leads to the generous embrace of the living world, the other to banishment. One woman is our ancestral gardener, a cocreator of the good green world that would be the home of her descendants. The other was an exile, just passing through an alien world on a rough road to her real home in heaven.

And then they met—the offspring of Skywoman and the children of Eve—and the land around us bears the scars of that meeting, the echoes of our stories. They say that hell hath no fury like a woman scorned, and I can only imagine the conversation between Eve and Skywoman: “Sister, you got the short end of the stick . . .”

The Skywoman story, shared by the original peoples throughout the Great Lakes, is a constant star in the constellation of teachings we call the Original Instructions. These are not “instructions” like commandments, though, or rules; rather, they are like a compass: they provide an orientation but not a map. The work of living is creating that map for yourself. How to follow the Original Instructions will be different for each of us and different for every era.

In their time, Skywoman’s first people lived by their understanding of the Original Instructions, with ethical prescriptions for respectful hunting, family life, ceremonies that made sense for their world. Those measures for caring might not seem to fit in today’s urban world, where “green” means an advertising slogan, not a meadow. The

buffalo are gone and the world has moved on. I can't return salmon to the river, and my neighbors would raise the alarm if I set fire to my yard to produce pasture for elk.

The earth was new then, when it welcomed the first human. It's old now, and some suspect that we have worn out our welcome by casting the Original Instructions aside. From the very beginning of the world, the other species were a lifeboat for the people. Now, we must be theirs. But the stories that might guide us, if they are told at all, grow dim in the memory. What meaning would they have today? How can we translate from the stories at the world's beginning to this hour so much closer to its end? The landscape has changed, but the story remains. And as I turn it over again and again, Skywoman seems to look me in the eye and ask, in return for this gift of a world on Turtle's back, what will I give in return?

It is good to remember that the original woman was herself an immigrant. She fell a long way from her home in the Skyworld, leaving behind all who knew her and who held her dear. She could never go back. Since 1492, most here are immigrants as well, perhaps arriving on Ellis Island without even knowing that Turtle Island rested beneath their feet. Some of my ancestors are Skywoman's people, and I belong to them. Some of my ancestors were the newer kind of immigrants, too: a French fur trader, an Irish carpenter, a Welsh farmer. And here we all are, on Turtle Island, trying to make a home. Their stories, of arrivals with empty pockets and nothing but hope, resonate with Skywoman's. She came here with nothing but a handful of seeds and the slimmest of instructions to "use your gifts and dreams for good," the same instructions we all carry. She accepted the gifts from the other beings with open hands and used them honorably. She shared the gifts she brought from Skyworld as she set herself about the business of flourishing, of making a home.

Perhaps the Skywoman story endures because we too are always falling. Our lives, both personal and collective, share her trajectory. Whether we jump or are pushed, or the edge of the known world just crumbles at our feet, we fall, spinning into someplace new and

unexpected. Despite our fears of falling, the gifts of the world stand by to catch us.

As we consider these instructions, it is also good to recall that, when Skywoman arrived here, she did not come alone. She was pregnant. Knowing her grandchildren would inherit the world she left behind, she did not work for flourishing in her time only. It was through her actions of reciprocity, the give and take with the land, that the original immigrant became indigenous. For all of us, becoming indigenous to a place means living as if your children's future mattered, to take care of the land as if our lives, both material and spiritual, depended on it.

In the public arena, I've heard the Skywoman story told as a bauble of colorful "folklore." But, even when it is misunderstood, there is power in the telling. Most of my students have never heard the origin story of this land where they were born, but when I tell them, something begins to kindle behind their eyes. Can they, can we all, understand the Skywoman story not as an artifact from the past but as instructions for the future? Can a nation of immigrants once again follow her example to become native, to make a home?

Look at the legacy of poor Eve's exile from Eden: the land shows the bruises of an abusive relationship. It's not just land that is broken, but more importantly, our relationship to land. As Gary Nabhan has written, we can't meaningfully proceed with healing, with restoration, without "re-story-ation." In other words, our relationship with land cannot heal until we hear its stories. But who will tell them?

In the Western tradition there is a recognized hierarchy of beings, with, of course, the human being on top—the pinnacle of evolution, the darling of Creation—and the plants at the bottom. But in Native ways of knowing, human people are often referred to as "the younger brothers of Creation." We say that humans have the least experience with how to live and thus the most to learn—we must look to our teachers among the other species for guidance. Their wisdom is apparent in the way that they live. They teach us by example. They've been on the earth far longer than we have been, and have had time to figure things out. They live both above and below ground, joining Skyworld

to the earth. Plants know how to make food and medicine from light and water, and then they give it away.

I like to imagine that when Skywoman scattered her handful of seeds across Turtle Island, she was sowing sustenance for the body and also for the mind, emotion, and spirit: she was leaving us teachers. The plants can tell us her story; we need to learn to listen.

THE COUNCIL OF PECANS

Heat waves shimmer above the grasses, the air heavy and white and ringing with the buzz of cicadas. They've been shoeless all summer long, but even so the dry September stubble of 1895 pricks their feet as they trot across the sunburned prairie, lifting their heels like grass dancers. Just young willow whips in faded dungarees and nothing else, their ribs showing beneath narrow brown chests as they run. They veer off toward the shady grove where the grass is soft and cool underfoot, flopping in the tall grass with the loose-limbed abandon of boys. They rest for a few moments in the shade and then spring to their feet, palming grasshoppers for bait.

The fishing poles are right where they left them, leaning up against an old cottonwood. They hook the grasshoppers through the back and throw out a line while the silt of the creek bottom oozes up cool between their toes. But the water hardly moves in the paltry channel left by drought. Nothing's biting but a few mosquitoes. After a bit, the prospect of a fish dinner seem as thin as their bellies, beneath faded denim pants held up with twine. Looks like nothing but biscuits and redeye gravy for supper tonight. Again. They hate to go home empty-handed and disappoint Mama, but even a dry biscuit fills the belly.

The land here, along the Canadian River, smack in the middle of Indian Territory, is a rolling savanna of grass with groves of trees in the bottomlands. Much of it has never been plow broke, as no one has a plow. The boys follow the stream from grove to grove back up toward the home place on the allotment, hoping for a deep pool somewhere,

finding nothing. Until one boy stubs his toe on something hard and round hidden in the long grass.

There's one and then another, and then another—so many he can hardly walk. He takes up a hard green ball from the ground and whips it through the trees at his brother like a fastball as he yells, “*Piganeḱ!* Let's bring 'em home!” The nuts have just begun to ripen and fall and blanket the grass. The boys fill their pockets in no time and then pile up a great heap more. Pecans are good eating but hard to carry, like trying to carry a bushel of tennis balls: the more you pick up, the more end up on the ground. They hate to go home empty-handed, and Mama would be glad for these—but you can't carry more than a handful . . .

The heat eases a little as the sun sinks low and evening air settles in the bottomland, cool enough for them to run home for supper. Mama hollers for them and the boys come running, their skinny legs pumping and their underpants flashing white in the fading light. It looks like they're each carrying a big forked log, hung like a yoke over their shoulders. They throw them down at her feet with grins of triumph: two pairs of worn-out pants, tied shut with twine at the ankles and bulging with nuts.

One of those skinny little boys was my grandpa, hungry enough to gather up food whenever he found it, living in a shanty on the Oklahoma prairie when it was still “Indian Territory,” just before it all blew away. As unpredictable as life may be, we have even less control over the stories they tell about us after we're gone. He'd laugh so hard to hear that his great-grandchildren know him not as a decorated World War I veteran, not as a skilled mechanic for newfangled automobiles, but as a barefoot boy on the reservation running home in his underwear with his pants stuffed with pecans.

The word *pecan*—the fruit of the tree known as the pecan hickory (*Carya illinoensis*)—comes to English from indigenous languages. *Pigan* is a nut, any nut. The hickories, black walnuts, and butternuts of our northern homelands have their own specific names. But those trees, like the homelands, were lost to my people. Our lands around

Lake Michigan were wanted by settlers, so in long lines, surrounded by soldiers, we were marched at gunpoint along what became known as the Trail of Death. They took us to a new place, far from our lakes and forests. But someone wanted that land too, so the bedrolls were packed again, thinner this time. In the span of a single generation my ancestors were “removed” three times—Wisconsin to Kansas, points in between, and then to Oklahoma. I wonder if they looked back for a last glimpse of the lakes, glimmering like a mirage. Did they touch the trees in remembrance as they became fewer and fewer, until there was only grass?

So much was scattered and left along that trail. Graves of half the people. Language. Knowledge. Names. My great-grandmother Sha-note, “wind blowing through,” was renamed Charlotte. Names the soldiers or the missionaries could not pronounce were not permitted.

When they got to Kansas they must have been relieved to find groves of nut trees along the rivers—a type unknown to them, but delicious and plentiful. Without a name for this new food they just called them nuts—*pigan*—which became *pecan* in English.

I only make pecan pie at Thanksgiving, when there are plenty around to eat it all. I don’t even like it especially, but I want to honor that tree. Feeding guests its fruit around the big table recalls the trees’ welcome to our ancestors when they were lonesome and tired and so far from home.

The boys may have come home fishless, but they brought back nearly as much protein as if they’d had a stringer of catfish. Nuts are like the pan fish of the forest, full of protein and especially fat—“poor man’s meat,” and they were poor. Today we eat them daintily, shelled and toasted, but in the old times they’d boil them up in a porridge. The fat floated to the top like a chicken soup and they skimmed it and stored it as nut butter: good winter food. High in calories and vitamins—everything you needed to sustain life. After all, that’s the whole point of nuts: to provide the embryo with all that is needed to start a new life.

....

Butternuts, black walnuts, hickories, and pecans are all closely related members of the same family (*Juglandaceae*). Our people carried them wherever they migrated, more often in baskets than in pants, though. Pecans today trace the rivers through the prairies, populating fertile bottomlands where people settled. My Haudenosaunee neighbors say that their ancestors were so fond of butternuts that they are a good marker of old village sites today. Sure enough, there is a grove of butternuts, uncommon in “wild” forests, on the hill above the spring at my house. I clear the weeds around the young ones every year and slosh a bucket of water on them when the rains are late. Remembering.

The old family home place on the allotment in Oklahoma has a pecan tree shading what remains of the house. I imagine Grammy pouring nuts out to prepare them and one rolling away to a welcoming spot at the edge of the dooryard. Or maybe she paid her debt to the trees by planting a handful in her garden right then and there.

Thinking back to that old story again, it strikes me that the boys in the pecan grove were very wise to carry home all that they could: nut trees don't make a crop every year, but rather produce at unpredictable intervals. Some years a feast, most years a famine, a boom and bust cycle known as mast fruiting. Unlike juicy fruits and berries, which invite you to eat them right away before they spoil, nuts protect themselves with a hard, almost stony shell and a green, leathery husk. The tree does not mean for you to eat them right away with juice dripping down your chin. They are designed to be food for winter, when you need fat and protein, heavy calories to keep you warm. They are safety for hard times, the embryo of survival. So rich is the reward that the contents are protected in a vault, double locked, a box inside a box. This protects the embryo within and its food supply, but it also virtually guarantees that the nut will be squirreled away someplace safe.

The only way through the shell is a lot of work, and a squirrel would be unwise to sit gnawing it in the open where a hawk would gladly take advantage of its preoccupation. Nuts are designed to be brought inside, to save for later in a chipmunk's cache, or in the root cellar of an Oklahoma cabin. In the way of all hoards, some will surely be forgotten—and then a tree is born.

For mast fruiting to succeed in generating new forests, each tree has to make lots and lots of nuts—so many that it overwhelms the would-be seed predators. If a tree just plodded along making a few nuts every year, they'd all get eaten and there would be no next generation of pecans. But given the high caloric value of nuts, the trees can't afford this outpouring every year—they have to save up for it, as a family saves up for a special event. Mast-fruiting trees spend years making sugar, and rather than spending it little by little, they stick it under the proverbial mattress, banking calories as starch in their roots. When the account has a surplus, only then could my Grandpa bring home pounds of nuts.

This boom and bust cycle remains a playground of hypotheses for tree physiologists and evolutionary biologists. Forest ecologists hypothesize that mast fruiting is the simple outcome of this energetic equation: make fruit only when you can afford it. That makes sense. But trees grow and accumulate calories at different rates depending on their habitats. So, like the settlers who got the fertile farmland, the fortunate ones would get rich quickly and fruit often, while their shaded neighbors would struggle and only rarely have an abundance, waiting for years to reproduce. If this were true, each tree would fruit on its own schedule, predictable by the size of its reserves of stored starch. But they don't. If one tree fruits, they all fruit—there are no soloists. Not one tree in a grove, but the whole grove; not one grove in the forest, but every grove; all across the county and all across the state. The trees act not as individuals, but somehow as a collective. Exactly how they do this, we don't yet know. But what we see is the power of unity. What happens to one happens to us all. We can starve together or feast together. All flourishing is mutual.

In the summer of 1895, the root cellars throughout Indian Territory were full of pecans, and so were the bellies of boys and squirrels. For people, the pulse of abundance felt like a gift, a profusion of food to be simply picked up from the ground. That is, if you got there before the squirrels. And if you didn't, at least there would be lots of squirrel stew that winter. The pecan groves give, and give again. Such communal generosity might seem incompatible with the process of evolution, which

invokes the imperative of individual survival. But we make a grave error if we try to separate individual well-being from the health of the whole. The gift of abundance from pecans is also a gift to themselves. By satiating squirrels and people, the trees are ensuring their own survival. The genes that translate to mast fruiting flow on evolutionary currents into the next generations, while those that lack the ability to participate will be eaten and reach an evolutionary dead end. Just so, people who know how to read the land for nuts and carry them home to safety will survive the February blizzards and pass on that behavior to their progeny, not by genetic transmission but by cultural practice.

Forest scientists describe the generosity of mast fruiting with the predator-satiation hypothesis. The story seems to go like this: When the trees produce more than the squirrels can eat, some nuts escape predation. Likewise, when the squirrel larders are packed with nuts, the plump pregnant mamas have more babies in each litter and the squirrel population skyrockets. Which means that the hawk mamas have more babies, and fox dens are full too. But when the next fall comes, the happy days are over, because the trees have shut off nut production. There's little to fill the squirrels' larders now—they come home empty-handed—so they go out looking, harder and harder, exposing themselves to the increased population of watchful hawks and hungry foxes. The predator-prey ratio is not in their favor, and through starvation and predation the squirrel population plummets and the woods grow quiet without their chattering. You can imagine the trees whispering to each other at this point, “There are just a few squirrels left. Wouldn't this be a good time to make some nuts?” All across the landscape, out come the pecan flowers poised to become a bumper crop again. Together, the trees survive, and thrive.

The federal government's Indian Removal policies wrenched many Native peoples from our homelands. It separated us from our traditional knowledge and lifeways, the bones of our ancestors, our sustaining plants—but even this did not extinguish identity. So the government

tried a new tool, separating children from their families and cultures, sending them far away to school, long enough, they hoped, to make them forget who they were.

Throughout Indian Territory there are records of Indian agents being paid a bounty for rounding up kids to ship to the government boarding schools. Later, in a pretense of choice, the parents had to sign papers to let their children go “legally.” Parents who refused could go to jail. Some may have hoped it would give their children a better future than a dust-bowl farm. Sometimes federal rations—weevilly flour and rancid lard that were supposed to replace the buffalo—would be withheld until the children were signed over. Maybe it was a good pecan year that staved off the agents for one more season. The threat of being sent away would surely make a small boy run home half naked, his pants stuffed with food. Maybe it was a low year for pecans when the Indian agent came again, looking for skinny brown kids who had no prospect of supper—maybe that was the year Grammy signed the papers.

Children, language, lands: almost everything was stripped away, stolen when you weren't looking because you were trying to stay alive. In the face of such loss, one thing our people could not surrender was the meaning of land. In the settler mind, land was property, real estate, capital, or natural resources. But to our people, it was everything: identity, the connection to our ancestors, the home of our nonhuman kinfolk, our pharmacy, our library, the source of all that sustained us. Our lands were where our responsibility to the world was enacted, sacred ground. It belonged to itself; it was a gift, not a commodity, so it could never be bought or sold. These are the meanings people took with them when they were forced from their ancient homelands to new places. Whether it was their homeland or the new land forced upon them, land held in common gave people strength; it gave them something to fight for. And so—in the eyes of the federal government—that belief was a threat.

So after thousands of miles of forced moves and loss and finally settling us in Kansas, the federal government came once again to my people and offered another move, this time to a place that would be

theirs forever, a move to end all moves. And what's more, the people were offered a chance to become United States citizens, to be part of the great country that surrounded them and to be protected by its power. Our leaders, my grandpa's grandpa among them, studied and counceled and sent delegations to Washington to consult. The U.S. Constitution apparently had no power to protect the homelands of indigenous peoples. Removal had made that abundantly clear. But the Constitution did explicitly protect the land rights of citizens who were individual property owners. Perhaps that was the route to a permanent home for the people.

The leaders were offered the American Dream, the right to own their own property as individuals, inviolate from the vagaries of shifting Indian policy. They'd never be forced off their lands again. There would be no more graves along a dusty road. All they had to do was agree to surrender their allegiance to land held in common and agree to private property. With heavy hearts, they sat in council all summer, struggling to decide and weighing the options, which were few. Families were divided against families. Stay in Kansas on communal land and run the risk of losing it all, or go to Indian Territory as individual landowners with a legal guarantee. This historic council met all that hot summer in a shady place that came to be known as the Pecan Grove.

We have always known that the plants and animals have their own councils, and a common language. The trees, especially, we recognize as our teachers. But it seems no one listened that summer when the Pecans counseled: Stick together, act as one. We Pecans have learned that there is strength in unity, that the lone individual can be picked off as easily as the tree that has fruited out of season. The teachings of Pecans were not heard, or heeded.

And so our families packed the wagon one more time and moved west to Indian Territory, to the promised land, to become the Citizen Potawatomi. Tired and dusty but hopeful for their future, they found an old friend their first night on the new lands: a pecan grove. They rolled their wagons beneath the shelter of its branches and began again. Every tribal member, even my grandpa, a baby in arms, was given title

to an allotment of land the federal government deemed sufficient for making a living as a farmer. By accepting citizenship, they ensured that their allotments could not be taken from them. Unless, of course, a citizen could not pay his taxes. Or a rancher offered a keg of whiskey and a lot of money, “fair and square.” Any unallocated parcels were snapped up by non-Indian settlers just as hungry squirrels snap up pecans. During the allotment era, more than two-thirds of the reservation lands were lost. Barely a generation after land was “guaranteed” through the sacrifice of common land converted to private property, most of it was gone.

The pecan trees and their kin show a capacity for concerted action, for unity of purpose that transcends the individual trees. They ensure somehow that all stand together and thus survive. How they do so is still elusive. There is some evidence that certain cues from the environment may trigger fruiting, like a particularly wet spring or a long growing season. These favorable physical conditions help all the trees achieve an energy surplus that they can spend on nuts. But, given the individual differences in habitat, it seems unlikely that environment alone could be the key to synchrony.

In the old times, our elders say, the trees talked to each other. They’d stand in their own council and craft a plan. But scientists decided long ago that plants were deaf and mute, locked in isolation without communication. The possibility of conversation was summarily dismissed. Science pretends to be purely rational, completely neutral, a system of knowledge-making in which the observation is independent of the observer. And yet the conclusion was drawn that plants cannot communicate because they lack the mechanisms that *animals* use to speak. The potentials for plants were seen purely through the lens of animal capacity. Until quite recently no one seriously explored the possibility that plants might “speak” to one another. But pollen has been carried reliably on the wind for eons, communicated by males to receptive females to make those very nuts. If the wind can be trusted with that fecund responsibility, why not with messages?

There is now compelling evidence that our elders were right—the

trees *are* talking to one another. They communicate via pheromones, hormonelike compounds that are wafted on the breeze, laden with meaning. Scientists have identified specific compounds that one tree will release when it is under the stress of insect attack—gypsy moths gorging on its leaves or bark beetles under its skin. The tree sends out a distress call: “Hey, you guys over there? I’m under attack here. You might want to raise the drawbridge and arm yourselves for what is coming your way.” The downwind trees catch the drift, sensing those few molecules of alarm, the whiff of danger. This gives them time to manufacture defensive chemicals. Forewarned is forearmed. The trees warn each other and the invaders are repelled. The individual benefits, and so does the entire grove. Trees appear to be talking about mutual defense. Could they also communicate to synchronize masting? There is so much we cannot yet sense with our limited human capacity. Tree conversations are still far above our heads.

Some studies of mast fruiting have suggested that the mechanism for synchrony comes not through the air, but underground. The trees in a forest are often interconnected by subterranean networks of mycorrhizae, fungal strands that inhabit tree roots. The mycorrhizal symbiosis enables the fungi to forage for mineral nutrients in the soil and deliver them to the tree in exchange for carbohydrates. The mycorrhizae may form fungal bridges between individual trees, so that all the trees in a forest are connected. These fungal networks appear to redistribute the wealth of carbohydrates from tree to tree. A kind of Robin Hood, they take from the rich and give to the poor so that all the trees arrive at the same carbon surplus at the same time. They weave a web of reciprocity, of giving and taking. In this way, the trees all act as one because the fungi have connected them. Through unity, survival. All flourishing is mutual. Soil, fungus, tree, squirrel, boy—all are the beneficiaries of reciprocity.

How generously they shower us with food, literally giving themselves so that we can live. But in the giving their lives are also ensured. Our taking returns benefit to them in the circle of life making life, the chain of reciprocity. Living by the precepts of the Honorable Harvest—to

take only what is given, to use it well, to be grateful for the gift, and to reciprocate the gift—is easy in a pecan grove. We reciprocate the gift by taking care of the grove, protecting it from harm, planting seeds so that new groves will shade the prairie and feed the squirrels.

Now, two generations later, after removal, after allotment, after the boarding schools, after diaspora, my family returns to Oklahoma, to what is left of my grandfather's allotment. From the hilltop you can still see pecan groves along the river. At night we dance on the old powwow grounds. The ancient ceremonies greet the sunrise. The smell of corn soup and the sound of drums fill the air as the nine bands of Potawatomi, scattered across the country by this history of removal, come together again for a few days each year in a search for belonging. The Potawatomi Gathering of Nations reunites the people, an antidote to the divide-and-conquer strategy that was used to separate our people from each other and from our homelands. The synchrony of our Gathering is determined by our leaders, but more importantly, there is something like a mycorrhizal network that unites us, an unseen connection of history and family and responsibility to both our ancestors and our children. As a nation, we are beginning to follow the guidance of our elders the pecans by standing together for the benefit of all. We are remembering what they said, that all flourishing is mutual.

This is a mast year for my family; we are all here at the Gathering, thick on the ground, like seeds for the future. Like an embryo provisioned and protected inside layers of stony shell, we have survived the lean years and flower together. I go walking in the pecan grove, perhaps the very place where my grandfather stuffed his pant legs full. He would be surprised to find us all here, dancing the circle, remembering pecans.

THE GIFT OF STRAWBERRIES

I once heard Evon Peter—a Gwich'in man, a father, a husband, an environmental activist, and Chief of Arctic Village, a small village in northeastern Alaska—introduce himself simply as “a boy who was raised by a river.” A description as smooth and slippery as a river rock. Did he mean only that he grew up near its banks? Or was the river responsible for rearing him, for teaching him the things he needed to live? Did it feed him, body and soul? Raised by a river: I suppose both meanings are true—you can hardly have one without the other.

In a way, I was raised by strawberries, fields of them. Not to exclude the maples, hemlocks, white pines, goldenrod, asters, violets, and mosses of upstate New York, but it was the wild strawberries, beneath dewy leaves on an almost-summer morning, who gave me my sense of the world, my place in it. Behind our house were miles of old hay fields divided by stone walls, long abandoned from farming but not yet grown up to forest. After the school bus chugged up our hill, I'd throw down my red plaid book bag, change my clothes before my mother could think of a chore, and jump across the crick to go wandering in the goldenrod. Our mental maps had all the landmarks we kids needed: the fort under the sumacs, the rock pile, the river, the big pine with branches so evenly spaced you could climb to the top as if it were a ladder—and the strawberry patches.

White petals with a yellow center—like a little wild rose—they dotted the acres of curl grass in May during the Flower Moon, *waabigwani-giizis*. We kept good track of them, peeking under the trifoliate leaves

to check their progress as we ran through on our way to catch frogs. After the flower finally dropped its petals, a tiny green nub appeared in its place, and as the days got longer and warmer it swelled to a small white berry. These were sour but we ate them anyway, impatient for the real thing.

You could smell ripe strawberries before you saw them, the fragrance mingling with the smell of sun on damp ground. It was the smell of June, the last day of school, when we were set free, and the Strawberry Moon, *ode'mini-giizis*. I'd lie on my stomach in my favorite patches, watching the berries grow sweeter and bigger under the leaves. Each tiny wild berry was scarcely bigger than a rain-drop, dimpled with seeds under the cap of leaves. From that vantage point I could pick only the reddest of the red, leaving the pink ones for tomorrow.

Even now, after more than fifty Strawberry Moons, finding a patch of wild strawberries still touches me with a sensation of surprise, a feeling of unworthiness and gratitude for the generosity and kindness that comes with an unexpected gift all wrapped in red and green. "Really? For me? Oh, you shouldn't have." After fifty years they still raise the question of how to respond to their generosity. Sometimes it feels like a silly question with a very simple answer: eat them.

But I know that someone else has wondered these same things. In our Creation stories the origin of strawberries is important. Skywoman's beautiful daughter, whom she carried in her womb from Skyworld, grew on the good green earth, loving and loved by all the other beings. But tragedy befell her when she died giving birth to her twins, Flint and Sapling. Heartbroken, Skywoman buried her beloved daughter in the earth. Her final gifts, our most revered plants, grew from her body. The strawberry arose from her heart. In Potawatomi, the strawberry is *ode min*, the heart berry. We recognize them as the leaders of the berries, the first to bear fruit.

Strawberries first shaped my view of a world full of gifts simply scattered at your feet. A gift comes to you through no action of your own, free, having moved toward you without your beckoning. It is not

a reward; you cannot earn it, or call it to you, or even deserve it. And yet it appears. Your only role is to be open-eyed and present. Gifts exist in a realm of humility and mystery—as with random acts of kindness, we do not know their source.

Those fields of my childhood showered us with strawberries, raspberries, blackberries, hickory nuts in the fall, bouquets of wildflowers brought to my mom, and family walks on Sunday afternoon. They were our playground, retreat, wildlife sanctuary, ecology classroom, and the place where we learned to shoot tin cans off the stone wall. All for free. Or so I thought.

I experienced the world in that time as a gift economy, “goods and services” not purchased but received as gifts from the earth. Of course I was blissfully unaware of how my parents must have struggled to make ends meet in the wage economy raging far from this field.

In our family, the presents we gave one another were almost always homemade. I thought that was the definition of a gift: something you made for someone else. We made all our Christmas gifts: piggy banks from old Clorox bottles, hot pads from broken clothespins, and puppets from retired socks. My mother says it was because we had no money for store-bought presents. It didn’t seem like a hardship to me; it was something special.

My father loves wild strawberries, so for Father’s Day my mother would almost always make him strawberry shortcake. She baked the crusty shortcakes and whipped the heavy cream, but we kids were responsible for the berries. We each got an old jar or two and spent the Saturday before the celebration out in the fields, taking forever to fill them as more and more berries ended up in our mouths. Finally, we returned home and poured them out on the kitchen table to sort out the bugs. I’m sure we missed some, but Dad never mentioned the extra protein.

In fact, he thought wild strawberry shortcake was the best possible present, or so he had us convinced. It was a gift that could never be bought. As children raised by strawberries, we were probably unaware that the gift of berries was from the fields themselves, not from

us. Our gift was time and attention and care and red-stained fingers. Heart berries, indeed.

Gifts from the earth or from each other establish a particular relationship, an obligation of sorts to give, to receive, and to reciprocate. The field gave to us, we gave to my dad, and we tried to give back to the strawberries. When the berry season was done, the plants would send out slender red runners to make new plants. Because I was fascinated by the way they would travel over the ground looking for good places to take root, I would weed out little patches of bare ground where the runners touched down. Sure enough, tiny little roots would emerge from the runner and by the end of the season there were even more plants, ready to bloom under the next Strawberry Moon. No person taught us this—the strawberries showed us. Because they had given us a gift, an ongoing relationship opened between us.

Farmers around us grew a lot of strawberries and frequently hired kids to pick for them. My siblings and I would ride our bikes a long way to Crandall's farm to pick berries to earn spending money. A dime for every quart we picked. But Mrs. Crandall was a persnickety overseer. She stood at the edge of the field in her bib apron and instructed us how to pick and warned us not to crush any berries. She had other rules, too. "These berries belong to me," she said, "not to you. I don't want to see you kids eating my berries." I knew the difference: In the fields behind my house, the berries belonged to themselves. At this lady's roadside stand, she sold them for sixty cents a quart.

It was quite a lesson in economics. We'd have to spend most of our wages if we wanted to ride home with berries in our bike baskets. Of course those berries were ten times bigger than our wild ones, but not nearly so good. I don't believe we ever put those farm berries in Dad's shortcake. It wouldn't have felt right.

. . . .

It's funny how the nature of an object—let's say a strawberry or a pair of socks—is so changed by the way it has come into your hands, as a gift or as a commodity. The pair of wool socks that I buy at the store, red and gray striped, are warm and cozy. I might feel grateful for the sheep that made the wool and the worker who ran the knitting machine. I hope so. But I have no *inherent* obligation to those socks as a commodity, as private property. There is no bond beyond the politely exchanged “thank yous” with the clerk. I have paid for them and our reciprocity ended the minute I handed her the money. The exchange ends once parity has been established, an equal exchange. They become my property. I don't write a thank-you note to JCPenney.

But what if those very same socks, red and gray striped, were knitted by my grandmother and given to me as a gift? That changes everything. A gift creates ongoing relationship. I will write a thank-you note. I will take good care of them and if I am a very gracious grandchild I'll wear them when she visits even if I don't like them. When it's her birthday, I will surely make her a gift in return. As the scholar and writer Lewis Hyde notes, “It is the cardinal difference between gift and commodity exchange that a gift establishes a feeling-bond between two people.”

Wild strawberries fit the definition of gift, but grocery store berries do not. It's the relationship between producer and consumer that changes everything. As a gift-thinker, I would be deeply offended if I saw wild strawberries in the grocery store. I would want to kidnap them all. They were not meant to be sold, only to be given. Hyde reminds us that in a gift economy, one's freely given gifts cannot be made into someone else's capital. I can see the headline now: “Woman Arrested for Shoplifting Produce. Strawberry Liberation Front Claims Responsibility.”

This is the same reason we do not sell sweetgrass. Because it is given to us, it should only be given to others. My dear friend Wally “Bear” Meshigaud is a ceremonial firekeeper for our people and uses a lot of sweetgrass on our behalf. There are folks who pick for him in a good way, to keep him supplied, but even so, at a big gathering sometimes he runs out. At powwows and fairs you can see our own people

selling sweetgrass for ten bucks a braid. When Wally really needs *wiingashk* for a ceremony, he may visit one of those booths among the stalls selling frybread or hanks of beads. He introduces himself to the seller, explains his need, just as he would in a meadow, asking permission of the sweetgrass. He *cannot* pay for it, not because he doesn't have the money, but because it cannot be bought or sold and still retain its essence for ceremony. He expects sellers to graciously give him what he needs, but sometimes they don't. The guy at the booth thinks he's being shaken down by an elder. "Hey, you can't get something for nothin'," he says. But that is exactly the point. A gift *is* something for nothing, except that certain obligations are attached. For the plant to be sacred, it cannot be sold. Reluctant entrepreneurs will get a teaching from Wally, but they'll never get his money.

Sweetgrass belongs to Mother Earth. Sweetgrass pickers collect properly and respectfully, for their own use and the needs of their community. They return a gift to the earth and tend to the well-being of the *wiingashk*. The braids are given as gifts, to honor, to say thank you, to heal and to strengthen. The sweetgrass is kept in motion. When Wally gives sweetgrass to the fire, it is a gift that has passed from hand to hand, growing richer as it is honored in every exchange.

That is the fundamental nature of gifts: they move, and their value increases with their passage. The fields made a gift of berries to us and we made a gift of them to our father. The more something is shared, the greater its value becomes. This is hard to grasp for societies steeped in notions of private property, where others are, by definition, excluded from sharing. Practices such as posting land against trespass, for example, are expected and accepted in a property economy but are unacceptable in an economy where land is seen as a gift to all.

Lewis Hyde wonderfully illustrates this dissonance in his exploration of the "Indian giver." This expression, used negatively today as a pejorative for someone who gives something and then wants to have it back, actually derives from a fascinating cross-cultural misinterpretation between an indigenous culture operating in a gift economy and a colonial culture predicated on the concept of private property. When

gifts were given to the settlers by the Native inhabitants, the recipients understood that they were valuable and were intended to be retained. Giving them away would have been an affront. But the indigenous people understood the value of the gift to be based in reciprocity and would be affronted if the gifts did not circulate back to them. Many of our ancient teachings counsel that whatever we have been given is supposed to be given away again.

From the viewpoint of a private property economy, the “gift” is deemed to be “free” because we obtain it free of charge, at no cost. But in the gift economy, gifts are not free. The essence of the gift is that it creates a set of relationships. The currency of a gift economy is, at its root, reciprocity. In Western thinking, private land is understood to be a “bundle of rights,” whereas in a gift economy property has a “bundle of responsibilities” attached.

I was once lucky enough to spend time doing ecological research in the Andes. My favorite part was market day in the local village, when the square filled with vendors. There were tables loaded with *platanos*, carts of fresh papaya, stalls in bright colors with pyramids of tomatoes, and buckets of hairy yucca roots. Other vendors spread blankets on the ground, with everything you could need, from flip-flops to woven palm hats. Squatting behind her red blanket, a woman in a striped shawl and navy blue bowler spread out medicinal roots as beautifully wrinkled as she was. The colors, the smells of corn roasting on a wood fire and sharp limes, and the sounds of all the voices mingle wonderfully in my memory. I had a favorite stall where the owner, Edita, looked for me each day. She'd kindly explain how to cook unfamiliar items and pull out the sweetest pineapple she'd been saving under the table. Once she even had strawberries. I know that I paid the *gringa* prices but the experience of abundance and goodwill were worth every peso.

I dreamed not long ago of that market with all its vivid textures. I walked through the stalls with a basket over my arm as always and went right to Edita for a bunch of fresh cilantro. We chatted and laughed

and when I held out my coins she waved them off, patting my arm and sending me away. A gift, she said. *Muchas gracias, señora*, I replied. There was my favorite *panadera*, with clean cloths laid over the round loaves. I chose a few rolls, opened my purse, and this vendor too gestured away my money as if I were impolite to suggest paying. I looked around in bewilderment; this was my familiar market and yet everything had changed. It wasn't just for me—no shopper was paying. I floated through the market with a sense of euphoria. Gratitude was the only currency accepted here. It was all a gift. It was like picking strawberries in my field: the merchants were just intermediaries passing on gifts from the earth.

I looked in my basket: two zucchinis, an onion, tomatoes, bread, and a bunch of cilantro. It was still half empty, but it felt full. I had everything I needed. I glanced over at the cheese stall, thinking to get some, but knowing it would be given, not sold, I decided I could do without. It's funny: Had all the things in the market merely been a very low price, I probably would have scooped up as much as I could. But when everything became a gift, I felt self-restraint. I didn't want to take too much. And I began thinking of what small presents I might bring to the vendors tomorrow.

The dream faded, of course, but the feelings first of euphoria and then of self-restraint remain. I've thought of it often and recognize now that I was witness there to the conversion of a market economy to a gift economy, from private goods to common wealth. And in that transformation the relationships became as nourishing as the food I was getting. Across the market stalls and blankets, warmth and compassion were changing hands. There was a shared celebration of abundance for all we'd been given. And since every market basket contained a meal, there was justice.

I'm a plant scientist and I want to be clear, but I am also a poet and the world speaks to me in metaphor. When I speak of the gift of berries, I do not mean that *Fragaria virginiana* has been up all night making a present just for me, strategizing to find exactly what I'd like on a summer morning. So far as we know, that does not happen, but

as a scientist I am well aware of how little we do know. The plant has in fact been up all night assembling little packets of sugar and seeds and fragrance and color, because when it does so its evolutionary fitness is increased. When it is successful in enticing an animal such as me to disperse its fruit, its genes for making yumminess are passed on to ensuing generations with a higher frequency than those of the plant whose berries were inferior. The berries made by the plant shape the behaviors of the dispersers and have adaptive consequences.

What I mean of course is that our human relationship with strawberries is transformed by our choice of perspective. It is human perception that makes the world a gift. When we view the world this way, strawberries and humans alike are transformed. The relationship of gratitude and reciprocity thus developed can increase the evolutionary fitness of both plant and animal. A species and a culture that treat the natural world with respect and reciprocity will surely pass on genes to ensuing generations with a higher frequency than the people who destroy it. The stories we choose to shape our behaviors have adaptive consequences.

Lewis Hyde has made extensive studies of gift economies. He finds that “objects . . . will remain plentiful *because* they are treated as gifts.” A gift relationship with nature is a “formal give-and-take that acknowledges our participation in, and dependence upon, natural increase. We tend to respond to nature as a part of ourselves, not a stranger or alien available for exploitation. Gift exchange is the commerce of choice, for it is commerce that harmonizes with, or participates in, the process of [nature’s] increase.”

In the old times, when people’s lives were so directly tied to the land, it was easy to know the world as gift. When fall came, the skies would darken with flocks of geese, honking “Here we are.” It reminds the people of the Creation story, when the geese came to save Skywoman. The people are hungry, winter is coming, and the geese fill the marshes with food. It is a gift and the people receive it with thanksgiving, love, and respect.

But when the food does not come from a flock in the sky, when

you don't feel the warm feathers cool in your hand and know that a life has been given for yours, when there is no gratitude in return—that food may not satisfy. It may leave the spirit hungry while the belly is full. Something is broken when the food comes on a Styrofoam tray wrapped in slippery plastic, a carcass of a being whose only chance at life was a cramped cage. That is not a gift of life; it is a theft.

How, in our modern world, can we find our way to understand the earth as a gift again, to make our relations with the world sacred again? I know we cannot all become hunter-gatherers—the living world could not bear our weight—but even in a market economy, can we behave “as if” the living world were a gift?

We could start by listening to Wally. There are those who will try to sell the gifts, but, as Wally says of sweetgrass for sale, “Don't buy it.” Refusal to participate is a moral choice. Water is a gift for all, not meant to be bought and sold. Don't buy it. When food has been wrenched from the earth, depleting the soil and poisoning our relatives in the name of higher yields, don't buy it.

In material fact, Strawberries belong only to themselves. The exchange relationships we choose determine whether we share them as a common gift or sell them as a private commodity. A great deal rests on that choice. For the greater part of human history, and in places in the world today, common resources were the rule. But some invented a different story, a social construct in which everything is a commodity to be bought and sold. The market economy story has spread like wildfire, with uneven results for human well-being and devastation for the natural world. But it is just a story we have told ourselves and we are free to tell another, to reclaim the old one.

One of these stories sustains the living systems on which we depend. One of these stories opens the way to living in gratitude and amazement at the richness and generosity of the world. One of these stories asks us to bestow our own gifts in kind, to celebrate our kinship with the world. We can choose. If all the world is a commodity, how poor we grow. When all the world is a gift in motion, how wealthy we become.

In those childhood fields, waiting for strawberries to ripen, I used

to eat the sour white ones, sometimes out of hunger but mostly from impatience. I knew the long-term results of my short-term greed, but I took them anyway. Fortunately, our capacity for self-restraint grows and develops like the berries beneath the leaves, so I learned to wait. A little. I remember lying on my back in the fields watching the clouds go by and rolling over to check the berries every few minutes. When I was young, I thought the change might happen that fast. Now I am old and I know that transformation is slow. The commodity economy has been here on Turtle Island for four hundred years, eating up the white strawberries and everything else. But people have grown weary of the sour taste in their mouths. A great longing is upon us, to live again in a world made of gifts. I can scent it coming, like the fragrance of ripening strawberries rising on the breeze.

AN OFFERING

Our people were canoe people. Until they made us walk. Until our lake-shore lodges were signed away for shanties and dust. Our people were a circle, until we were dispersed. Our people shared a language with which to thank the day, until they made us forget. But we didn't forget. Not quite.

Most summer mornings of childhood I woke to the sound of the out-house door—the squeak of the hinge followed by the hollow *thunk* as it shut. I rose to consciousness through the hazy songs of vireos and thrushes, the lapping of the lake, and finally the sound of my father pumping the tank on the Coleman stove. By the time my brother and sisters and I emerged from our sleeping bags the sun would just be topping the eastern shore, pulling mist off the lake in long white coils. The small four-cup coffeepot of battered aluminum, blackened with the smoke of many fires, would already be thumping. Our family spent summers canoe camping in the Adirondacks and every day began this way.

I can picture my father, in his red-checked wool shirt, standing atop the rocks above the lake. When he lifts the coffeepot from the stove the morning bustle stops; we know without being told that it's time to pay attention. He stands at the edge of camp with the coffeepot in his hands, holding the top in place with a folded pot holder. He pours coffee out on the ground in a thick brown stream.

The sunlight catches the flow, striping it amber and brown and black as it falls to the earth and steams in the cool morning air. With his face to the morning sun, he pours and speaks into the stillness, “Here’s to the gods of Tahawus.” The stream runs down over smooth granite to merge with the lake water, as clear and brown as the coffee. I watch it trickle, picking up bits of pale lichen and soaking a tiny clump of moss as it follows a crack to the water’s edge. The moss swells with the liquid and unfurls its leaves to the sun. Then and only then does he pour out steaming cups of coffee for himself and my mother, who stands at the stove making pancakes. So begins each morning in the north woods: the words that come before all else.

I was pretty sure that no other family I knew began their day like this, but I never questioned the source of those words and my father never explained. They were just part of our life among the lakes. But their rhythm made me feel at home and the ceremony drew a circle around our family. By those words we said “Here we are,” and I imagined that the land heard us—murmured to itself, “Ohh, *here* are the ones who know how to say thank you.”

Tahawus is the Algonquin name for Mount Marcy, the highest peak in the Adirondacks. It’s called Mount Marcy to commemorate a governor who never set foot on those wild slopes. Tahawus, “the Cloud Splitter,” is its true name, invoking its essential nature. Among our Potawatomi people, there are public names and true names. True names are used only by intimates and in ceremony. My father had been on Tahawus’s summit many times and knew it well enough to call it by name, speaking with intimate knowledge of the place and the people who came before. When we call a place by name it is transformed from wilderness to homeland. I imagined that this beloved place knew my true name as well, even when I myself did not.

Sometimes my father would name the gods of Forked Lake or South Pond or Brandy Brook Flow, wherever our tents were settled for the night. I came to know that each place was inspirited, was home to others before we arrived and long after we left. As he called out

the names and offered a gift, the first coffee, he quietly taught us the respect we owed these other beings and how to show our thanks for summer mornings.

I knew that in the long-ago times our people raised their thanks in morning songs, in prayer, and the offering of sacred tobacco. But at that time in our family history we didn't have sacred tobacco and we didn't know the songs—they'd been taken away from my grandfather at the doors of the boarding school. But history moves in a circle and here we were, the next generation, back to the loon-filled lakes of our ancestors, back to canoes.

My mother had her own more pragmatic ritual of respect: the translation of reverence and intention into action. Before we paddled away from any camping place she made us kids scour the place to be sure that it was spotless. No burnt matchstick, no scrap of paper escaped her notice. "Leave this place better than you found it," she admonished. And so we did. We also had to leave wood for the next person's fire, with tinder and kindling carefully sheltered from rain by a sheet of birch bark. I liked to imagine their pleasure, those other paddlers, arriving after dark to find a ready pile of fuel to warm their evening meal. My mother's ceremony connected us to them, too.

The offering was made only under an open sky and never back in town where we lived. On Sundays, when other kids would go to church, my folks would take us out along the river to look for herons and muskrats, to the woods to hunt for spring flowers, or on picnics. The words came along. For our winter picnics, we would walk all morning on snowshoes and then build a fire in the center of a circle stomped down with our webbed feet. This time the pot was full of bubbling tomato soup, and the first draught poured was for the snow. "Here's to the gods of Tahawus"—only then would we wrap mittened hands around our steaming cups.

And yet, as I grew to adolescence, the offering began to leave me angry or sad. The circle that had brought me a sense of belonging turned inside out. I heard in the words a message that we did not belong because

we spoke in the language of exiles. It was a secondhand ceremony. Somewhere there were people who knew the right ceremony, who knew the lost language and spoke the true names, including my own.

But, still, every morning I watched the coffee disappear into the crumbly brown humus, as if returning to itself. In the same way that the flow of coffee down the rock opened the leaves of the moss, ceremony brought the quiescent back to life, opened my mind and heart to what I knew, but had forgotten. The words and the coffee called us to remember that these woods and lakes were a gift. Ceremonies large and small have the power to focus attention to a way of living awake in the world. The visible became invisible, merging with the soil. It may have been a secondhand ceremony, but even through my confusion I recognized that the earth drank it up as if it were right. The land knows you, even when you are lost.

A people's story moves along like a canoe caught in the current, being carried closer and closer to where we had begun. As I grew up, my family found again the tribal connections that had been frayed, but never broken, by history. We found the people who knew our true names. And when I first heard in Oklahoma the sending of thanks to the four directions at the sunrise lodge—the offering in the old language of the sacred tobacco—I heard it as if in my father's voice. The language was different but the heart was the same.

Ours was a solitary ceremony, but fed from the same bond with the land, founded on respect and gratitude. Now the circle drawn around us is bigger, encompassing a whole people to which we again belong. But still the offering says, "Here we are," and still I hear at the end of the words the land murmuring to itself, "Ohh, *here* are the ones who know how to say thank you." Today, my father can speak his prayer in our language. But it was "Here's to the gods of Tahawus" that came first, in the voice that I will always hear.

It was in the presence of the ancient ceremonies that I understood that our coffee offering was not secondhand, it was ours.

....

Much of who I am and what I do is wrapped up in my father's offering by the lakeshore. Each day still begins with a version of "Here's to the gods of Tahawus," a thanksgiving for the day. My work as an ecologist, a writer, a mother, as a traveler between scientific and traditional ways of knowing, grows from the power of those words. It reminds me of who we are; it reminds me of our gifts and our responsibility to those gifts. Ceremony is a vehicle for belonging—to a family, to a people, and to the land.

At last, I thought that I understood the offering to the gods of Tahawus. It was, for me, the *one* thing that was not forgotten, that which could not be taken by history: the knowing that we belonged to the land, that we were the people who knew how to say thank you. It welled up from a deep blood memory that the land, the lakes, and the spirit had held for us. But years later, with my own answer already in place, I asked my father, "Where did the ceremony come from—did you learn it from your father, and he from his? Did it stretch all the way back to the time of the canoes?"

He thought for a long time. "No, I don't think so. It's just what we did. It seemed right." That was all.

Some weeks went by, though, and when we spoke again he said, "I've been thinking about the coffee and how we started giving it to the ground. You know, it was boiled coffee. There's no filter and if it boils too hard the grounds foam up and get stuck in the spout. So the first cup you pour would get that plug of grounds and be spoiled. I think we first did it to clear the spout." It was as if he'd told me that the water didn't change to wine—the whole web of gratitude, the whole story of remembrance, was nothing more than the *dumping* of the grounds?

"But, you know," he said, "there weren't always grounds to clear. It started out that way, but it became something else. A thought. It was a kind of respect, a kind of thanks. On a beautiful summer morning, I suppose you could call it joy."

That, I think, is the power of ceremony: it marries the mundane to the sacred. The water turns to wine, the coffee to a prayer. The material

and the spiritual mingle like grounds mingled with humus, transformed like steam rising from a mug into the morning mist.

What else can you offer the earth, which has everything? What else can you give but something of yourself? A homemade ceremony, a ceremony that makes a home.

ASTERS AND GOLDENROD

The girl in the picture holds a slate with her name and “class of ’75” chalked in, a girl the color of deerskin with long dark hair and inky unreadable eyes that meet yours and won’t look away. I remember that day. I was wearing the new plaid shirt that my parents had given me, an outfit I thought to be the hallmark of all foresters. When I looked back at the photo later in life, it was a puzzle to me. I recall being elated to be going to college, but there is no trace of that in the girl’s face.

Even before I arrived at school, I had all of my answers prepared for the freshman intake interview. I wanted to make a good first impression. There were hardly any women at the forestry school in those days and certainly none who looked like me. The adviser peered at me over his glasses and said, “So, why do you want to major in botany?” His pencil was poised over the registrar’s form.

How could I answer, how could I tell him that I was born a botanist, that I had shoeboxes of seeds and piles of pressed leaves under my bed, that I’d stop my bike along the road to identify a new species, that plants colored my dreams, that the plants had chosen me? So I told him the truth. I was proud of my well-planned answer, its freshman sophistication apparent to anyone, the way it showed that I already knew some plants and their habitats, that I had thought deeply about their nature and was clearly well prepared for college work. I told him that I chose botany because I wanted to learn about why asters and goldenrod looked so beautiful together. I’m sure I was smiling then, in my red plaid shirt.

But he was not. He laid down his pencil as if there was no need to record what I had said. “Miss Wall,” he said, fixing me with a disappointed smile, “I must tell you that *that* is not science. That is not at all the sort of thing with which botanists concern themselves.” But he promised to put me right. “I’ll enroll you in General Botany so you can learn what it is.” And so it began.

I like to imagine that they were the first flowers I saw, over my mother’s shoulder, as the pink blanket slipped away from my face and their colors flooded my consciousness. I’ve heard that early experience can attune the brain to certain stimuli, so that they are processed with greater speed and certainty, so that they can be used again and again, so that we remember. Love at first sight. Through cloudy newborn eyes their radiance formed the first botanical synapses in my wide-awake, newborn brain, which until then had encountered only the blurry gentleness of pink faces. I’m guessing all eyes were on me, a little round baby all swaddled in bunting, but mine were on Goldenrod and Asters. I was born to these flowers and they came back for my birthday every year, weaving me into our mutual celebration.

People flock to our hills for the fiery suite of October but they often miss the sublime prelude of September fields. As if harvest time were not enough—peaches, grapes, sweet corn, squash—the fields are also embroidered with drifts of golden yellow and pools of deepest purple, a masterpiece.

If a fountain could jet bouquets of chrome yellow in dazzling arches of chrysanthemum fireworks, that would be Canada Goldenrod. Each three-foot stem is a geyser of tiny gold daisies, ladylike in miniature, exuberant en masse. Where the soil is damp enough, they stand side by side with their perfect counterpart, New England Asters. Not the pale domesticates of the perennial border, the weak sauce of lavender or sky blue, but full-on royal purple that would make a violet shrink. The daisylike fringe of purple petals surrounds a disc as bright as the sun at high noon, a golden-orange pool, just a tantalizing shade

darker than the surrounding goldenrod. Alone, each is a botanical superlative. Together, the visual effect is stunning. Purple and gold, the heraldic colors of the king and queen of the meadow, a regal procession in complementary colors. I just wanted to know why.

Why do they stand beside each other when they could grow alone? Why this particular pair? There are plenty of pinks and whites and blues dotting the fields, so is it only happenstance that the magnificence of purple and gold end up side by side? Einstein himself said that “God doesn’t play dice with the universe.” What is the source of this pattern? Why is the world so beautiful? It could so easily be otherwise: flowers could be ugly to us and still fulfill their own purpose. But they’re not. It seemed like a good question to me.

But my adviser said, “It’s not science,” not what botany was about. I wanted to know why certain stems bent easily for baskets and some would break, why the biggest berries grew in the shade and why they made us medicines, which plants are edible, why those little pink orchids only grow under pines. “Not science,” he said, and he ought to know, sitting in his laboratory, a learned professor of botany. “And if you want to study beauty, you should go to art school.” He reminded me of my deliberations over choosing a college, when I had vacillated between training as a botanist or as a poet. Since everyone told me I couldn’t do both, I’d chosen plants. He told me that science was not about beauty, not about the embrace between plants and humans.

I had no rejoinder; I had made a mistake. There was no fight in me, only embarrassment at my error. I did not have the words for resistance. He signed me up for my classes and I was dismissed to go get my photo taken for registration. I didn’t think about it at the time, but it was happening all over again, an echo of my grandfather’s first day at school, when he was ordered to leave everything—language, culture, family—behind. The professor made me doubt where I came from, what I knew, and claimed that his was the *right* way to think. Only he didn’t cut my hair off.

In moving from a childhood in the woods to the university I had unknowingly shifted between worldviews, from a natural history of

experience, in which I knew plants as teachers and companions to whom I was linked with mutual responsibility, into the realm of science. The questions scientists raised were not “Who are you?” but “What is it?” No one asked plants, “What can you tell us?” The primary question was “How does it work?” The botany I was taught was reductionist, mechanistic, and strictly objective. Plants were reduced to objects; they were not subjects. The way botany was conceived and taught didn’t seem to leave much room for a person who thought the way I did. The only way I could make sense of it was to conclude that the things I had always believed about plants must not be true after all.

That first plant science class was a disaster. I barely scraped by with a C and could not muster much enthusiasm for memorizing the concentrations of essential plant nutrients. There were times when I wanted to quit, but the more I learned, the more fascinated I became with the intricate structures that made up a leaf and the alchemy of photosynthesis. Companionship between asters and goldenrod was never mentioned, but I memorized botanical Latin as if it was poetry, eagerly tossing aside the name “goldenrod” for *Solidago canadensis*. I was mesmerized by plant ecology, evolution, taxonomy, physiology, soils, and fungi. All around me were my good teachers, the plants. I found good mentors, too, warm and kind professors who were doing heart-driven science, whether they could admit it or not. They too were my teachers. And yet there was always something tapping at my shoulder, willing me to turn around. When I did, I did not know how to recognize what stood behind me.

My natural inclination was to see relationships, to seek the threads that connect the world, to join instead of divide. But science is rigorous in separating the observer from the observed, and the observed from the observer. Why two flowers are beautiful together would violate the division necessary for objectivity.

I scarcely doubted the primacy of scientific thought. Following the path of science trained me to separate, to distinguish perception from

physical reality, to atomize complexity into its smallest components, to honor the chain of evidence and logic, to discern one thing from another, to savor the pleasure of precision. The more I did this, the better I got at it, and I was accepted to do graduate work in one of the world's finest botany programs, no doubt on the strength of the letter of recommendation from my adviser, which read, "She's done remarkably well for an Indian girl."

A master's degree, a PhD, and a faculty position followed. I am grateful for the knowledge that was shared with me and deeply privileged to carry the powerful tools of science as a way of engaging the world. It took me to other plant communities, far from the asters and goldenrod. I remember feeling, as a new faculty member, as if I finally understood plants. I too began to teach the mechanics of botany, emulating the approach that I had been taught.

It reminds me of a story told by my friend Holly Youngbear Tibbetts. A plant scientist, armed with his notebooks and equipment, is exploring the rainforests for new botanical discoveries, and he has hired an indigenous guide to lead him. Knowing the scientist's interests, the young guide takes care to point out the interesting species. The botanist looks at him appraisingly, surprised by his capacity. "Well, well, young man, you certainly know the names of a lot of these plants." The guide nods and replies with downcast eyes. "Yes, I have learned the names of all the bushes, but I have yet to learn their songs."

I was teaching the names and ignoring the songs.

When I was in graduate school in Wisconsin, my then husband and I had the good fortune to land jobs as caretakers at the university arboretum. In return for a little house at the edge of the prairie, we had only to make the nighttime rounds, checking that doors and gates were secure before we left the darkness to the crickets. There was just one time that a light was left burning, a door left ajar, in the horticulture garage. There was no mischief, but as my husband checked around, I stood and idly scanned the bulletin board. There was a news

clipping there with a photo of a magnificent American elm, which had just been named the champion for its species, the largest of its kind. It had a name: The Louis Vieux Elm.

My heart began to pound and I knew my world was about to change, for I'd known the name Louis Vieux all my life and here was his face looking at me from a news clipping. He was our Potawatomi grandfather, one who had walked all the way from the Wisconsin forests to the Kansas prairie with my grandma Sha-note. He was a leader, one who took care of the people in their hardship. That garage door was left ajar, that light was left burning, and it shone on the path back home for me. It was the beginning of a long, slow journey back to my people, called out to me by the tree that stood above their bones.

To walk the science path I had stepped off the path of indigenous knowledge. But the world has a way of guiding your steps. Seemingly out of the blue came an invitation to a small gathering of Native elders, to talk about traditional knowledge of plants. One I will never forget—a Navajo woman without a day of university botany training in her life—spoke for hours and I hung on every word. One by one, name by name, she told of the plants in her valley. Where each one lived, when it bloomed, who it liked to live near and all its relationships, who ate it, who lined their nests with its fibers, what kind of medicine it offered. She also shared the stories held by those plants, their origin myths, how they got their names, and what they have to tell us. She spoke of beauty.

Her words were like smelling salts waking me to what I had known back when I was picking strawberries. I realized how shallow my understanding was. Her knowledge was so much deeper and wider and engaged all the human ways of understanding. She could have explained asters and goldenrod. To a new PhD, this was humbling. It was the beginning of my reclaiming that other way of knowing that I had helplessly let science supplant. I felt like a malnourished refugee invited to a feast, the dishes scented with the herbs of home.

I circled right back to where I had begun, to the question of beauty. Back to the questions that science does not ask, not because they aren't

important, but because science as a way of knowing is too narrow for the task. Had my adviser been a better scholar, he would have celebrated my questions, not dismissed them. He offered me only the cliché that beauty is in the eye of the beholder, and since science separates the observer and the observed, by definition beauty could not be a valid scientific question. I should have been told that my questions were bigger than science could touch.

He *was* right about beauty being in the eye of the beholder, especially when it comes to purple and yellow. Color perception in humans relies on banks of specialized receptor cells, the rods and cones in the retina. The job of the cone cells is to absorb light of different wavelengths and pass it on to the brain's visual cortex, where it can be interpreted. The visible light spectrum, the rainbow of colors, is broad, so the most effective means of discerning color is not one generalized jack-of-all-trades cone cell, but rather an array of specialists, each perfectly tuned to absorb certain wavelengths. The human eye has three kinds. One type excels at detecting red and associated wavelengths. One is tuned to blue. The other optimally perceives light of two colors: purple and yellow.

The human eye is superbly equipped to detect these colors and send a signal pulsing to the brain. This doesn't explain why I perceive them as beautiful, but it does explain why that combination gets my undivided attention. I asked my artist buddies about the power of purple and gold, and they sent me right to the color wheel: these two are complementary colors, as different in nature as could be. In composing a palette, putting them together makes each more vivid; just a touch of one will bring out the other. In an 1890 treatise on color perception, Goethe, who was both a scientist and a poet, wrote that "the colors diametrically opposed to each other . . . are those which *reciprocally* evoke each other in the eye." Purple and yellow are a reciprocal pair.

Our eyes are so sensitive to these wavelengths that the cones can get oversaturated and the stimulus pours over onto the other cells. A print-maker I know showed me that if you stare for a long time at a block of

yellow and then shift your gaze to a white sheet of paper, you will see it, for a moment, as violet. This phenomenon—the colored afterimage—occurs because there is energetic reciprocity between purple and yellow pigments, which goldenrod and asters knew well before we did.

If my adviser was correct, the visual effect that so delights a human like me may be irrelevant to the flowers. The real beholder whose eye they hope to catch is a bee bent on pollination. Bees perceive many flowers differently than humans do due to their perception of additional spectra such as ultraviolet radiation. As it turns out, though, goldenrod and asters appear very similarly to bee eyes and human eyes. We both think they're beautiful. Their striking contrast when they grow together makes them the most attractive target in the whole meadow, a beacon for bees. Growing together, both receive more pollinator visits than they would if they were growing alone. It's a testable hypothesis; it's a question of science, a question of art, and a question of beauty.

Why are they beautiful together? It is a phenomenon simultaneously material and spiritual, for which we need all wavelengths, for which we need depth perception. When I stare too long at the world with science eyes, I see an afterimage of traditional knowledge. Might science and traditional knowledge be purple and yellow to one another, might they be goldenrod and asters? We see the world more fully when we use both.

The question of goldenrod and asters was of course just emblematic of what I really wanted to know. It was an architecture of relationships, of connections that I yearned to understand. I wanted to see the shimmering threads that hold it all together. And I wanted to know why we love the world, why the most ordinary scrap of meadow can rock us back on our heels in awe.

When botanists go walking the forests and fields looking for plants, we say we are going on a *foray*. When writers do the same, we should call it a *metaphoray*, and the land is rich in both. We need them both; scientist and poet Jeffrey Burton Russell writes that “as the sign of a deeper truth, metaphor was close to sacrament. Because the vastness

and richness of reality cannot be expressed by the overt sense of a statement alone.”

Native scholar Greg Cajete has written that in indigenous ways of knowing, we understand a thing only when we understand it with all four aspects of our being: mind, body, emotion, and spirit. I came to understand quite sharply when I began my training as a scientist that science privileges only one, possibly two, of those ways of knowing: mind and body. As a young person wanting to know everything about plants, I did not question this. But it is a whole human being who finds the beautiful path.

There was a time when I teetered precariously with an awkward foot in each of two worlds—the scientific and the indigenous. But then I learned to fly. Or at least try. It was the bees that showed me how to move between different flowers—to drink the nectar and gather pollen from both. It is this dance of cross-pollination that can produce a new species of knowledge, a new way of being in the world. After all, there aren’t two worlds, there is just this one good green earth.

That September pairing of purple and gold is lived reciprocity; its wisdom is that the beauty of one is illuminated by the radiance of the other. Science and art, matter and spirit, indigenous knowledge and Western science—can they be goldenrod and asters for each other? When I am in their presence, their beauty asks me for reciprocity, to be the complementary color, to make something beautiful in response.

LEARNING THE GRAMMAR OF ANIMACY

To be native to a place we must learn to speak its language.

I come here to listen, to nestle in the curve of the roots in a soft hollow of pine needles, to lean my bones against the column of white pine, to turn off the voice in my head until I can hear the voices outside it: the *shhh* of wind in needles, water trickling over rock, nuthatch tapping, chipmunks digging, beechnut falling, mosquito in my ear, and something more—something that is not me, for which we have no language, the wordless being of others in which we are never alone. After the drumbeat of my mother's heart, *this* was my first language.

I could spend a whole day listening. And a whole night. And in the morning, without my hearing it, there might be a mushroom that was not there the night before, creamy white, pushed up from the pine needle duff, out of darkness to light, still glistening with the fluid of its passage. *Puhpowee*.

Listening in wild places, we are audience to conversations in a language not our own. I think now that it was a longing to comprehend this language I hear in the woods that led me to science, to learn over the years to speak fluent botany. A tongue that should not, by the way, be mistaken for the language of plants. I did learn another language in science, though, one of careful observation, an intimate vocabulary that names each little part. To name and describe you must first see, and science polishes the gift of seeing. I honor the strength of the

language that has become a second tongue to me. But beneath the richness of its vocabulary and its descriptive power, something is missing, the same something that swells around you and in you when you listen to the world. Science can be a language of distance which reduces a being to its working parts; it is a language of objects. The language scientists speak, however precise, is based on a profound error in grammar, an omission, a grave loss in translation from the native languages of these shores.

My first taste of the missing language was the word *Puhpowee* on my tongue. I stumbled upon it in a book by the Anishinaabe ethnobotanist Keewaydinoquay, in a treatise on the traditional uses of fungi by our people. *Puhpowee*, she explained, translates as “the force which causes mushrooms to push up from the earth overnight.” As a biologist, I was stunned that such a word existed. In all its technical vocabulary, Western science has no such term, no words to hold this mystery. You’d think that biologists, of all people, would have words for life. But in scientific language our terminology is used to define the boundaries of our knowing. What lies beyond our grasp remains unnamed.

In the three syllables of this new word I could see an entire process of close observation in the damp morning woods, the formulation of a theory for which English has no equivalent. The makers of this word understood a world of being, full of unseen energies that animate everything. I’ve cherished it for many years, as a talisman, and longed for the people who gave a name to the life force of mushrooms. The language that holds *Puhpowee* is one that I wanted to speak. So when I learned that the word for rising, for emergence, belonged to the language of my ancestors, it became a signpost for me.

Had history been different, I would likely speak Bodewadmimwin, or Potawatomi, an Anishinaabe language. But, like many of the three hundred and fifty indigenous languages of the Americas, Potawatomi is threatened, and I speak the language you read. The powers of assimilation did their work as my chance of hearing that language, and yours too, was washed from the mouths of Indian children in government boarding schools where speaking your native tongue was forbidden.

Children like my grandfather, who was taken from his family when he was just a little boy of nine years old. This history scattered not only our words but also our people. Today I live far from our reservation, so even if I could speak the language, I would have no one to talk to. But a few summers ago, at our yearly tribal gathering, a language class was held and I slipped into the tent to listen.

There was a great deal of excitement about the class because, for the first time, every single fluent speaker in our tribe would be there as a teacher. When the speakers were called forward to the circle of folding chairs, they moved slowly—with canes, walkers, and wheelchairs, only a few entirely under their own power. I counted them as they filled the chairs. Nine. Nine fluent speakers. In the whole world. Our language, millennia in the making, sits in those nine chairs. The words that praised creation, told the old stories, lulled my ancestors to sleep, rests today in the tongues of nine very mortal men and women. Each in turn addresses the small group of would-be students.

A man with long gray braids tells how his mother hid him away when the Indian agents came to take the children. He escaped boarding school by hiding under an overhung bank where the sound of the stream covered his crying. The others were all taken and had their mouths washed out with soap, or worse, for “talking that dirty Indian language.” Because he alone stayed home and was raised up calling the plants and animals by the name Creator gave them, he is here today, a carrier of the language. The engines of assimilation worked well. The speaker’s eyes blaze as he tells us, “We’re the end of the road. We are all that is left. If you young people do not learn, the language will die. The missionaries and the U.S. government will have their victory at last.”

A great-grandmother from the circle pushes her walker up close to the microphone. “It’s not just the words that will be lost,” she says. “The language is the heart of our culture; it holds our thoughts, our way of seeing the world. It’s too beautiful for English to explain.” *Puhpowee*.

Jim Thunder, at seventy-five the youngest of the speakers, is a

round brown man of serious demeanor who spoke only in Potawatomi. He began solemnly, but as he warmed to his subject his voice lifted like a breeze in the birch trees and his hands began to tell the story. He became more and more animated, rising to his feet, holding us rapt and silent although almost no one understood a single word. He paused as if reaching the climax of his story and looked out at the audience with a twinkle of expectation. One of the grandmothers behind him covered her mouth in a giggle and his stern face suddenly broke into a smile as big and sweet as a cracked watermelon. He bent over laughing and the grandmas dabbed away tears of laughter, holding their sides, while the rest of us looked on in wonderment. When the laughter subsided, he spoke at last in English: "What will happen to a joke when no one can hear it anymore? How lonely those words will be, when their power is gone. Where will they go? Off to join the stories that can never be told again."

So now my house is spangled with Post-it notes in another language, as if I were studying for a trip abroad. But I'm not going away, I'm coming home.

Ni pi je ezhyayen? asks the little yellow sticky note on my back door. My hands are full and the car is running, but I switch my bag to the other hip and pause long enough to respond. *Odanek nde zhya*, I'm going to town. And so I do, to work, to class, to meetings, to the bank, to the grocery store. I talk all day and sometimes write all evening in the beautiful language I was born to, the same one used by 70 percent of the world's people, a tongue viewed as the most useful, with the richest vocabulary in the modern world. English. When I get home at night to my quiet house, there is a faithful Post-it note on the closet door. *Gisken I gbiskewagen!* And so I take off my coat.

I cook dinner, pulling utensils from cupboards labeled *emkwanen, nagen*. I have become a woman who speaks Potawatomi to household objects. When the phone rings I barely glance at the Post-it there as I *dopnen* the *giktogan*. And whether it is a solicitor or a friend, they speak

English. Once a week or so, it is my sister from the West Coast who says *Bozho. Mokttthewenkwe nda*—as if she needed to identify herself: who else speaks Potawatomi? To call it speaking is a stretch. Really, all we do is blurt garbled phrases to each other in a parody of conversation: How are you? I am fine. Go to town. See bird. Red. Frybread good. We sound like Tonto's side of the Hollywood dialogue with the Lone Ranger. "Me try talk good Injun way." On the rare occasion when we actually can string together a halfway coherent thought, we freely insert high school Spanish words to fill in the gaps, making a language we call Spanawatomi.

Tuesdays and Thursdays at 12:15 Oklahoma time, I join the Potawatomi lunchtime language class, streaming from tribal headquarters via the Internet. There are usually about ten of us, from all over the country. Together we learn to count and to say *pass the salt*. Someone asks, "How do you say *please* pass the salt?" Our teacher, Justin Neely, a young man devoted to language revival, explains that while there are several words for *thank you*, there is no word for *please*. Food was meant to be shared, no added politeness needed; it was simply a cultural given that one was asking respectfully. The missionaries took this absence as further evidence of crude manners.

Many nights, when I should be grading papers or paying bills, I'm at the computer running through Potawatomi language drills. After months, I have mastered the kindergarten vocabulary and can confidently match the pictures of animals to their indigenous names. It reminds me of reading picture books to my children: "Can you point to the squirrel? Where is the bunny?" All the while I'm telling myself that I really don't have time for this, and what's more, little need to know the words for *bass* and *fox* anyway. Since our tribal diaspora left us scattered to the four winds, who would I talk to?

The simple phrases I'm learning are perfect for my dog. Sit! Eat! Come here! Be quiet! But since she scarcely responds to these commands in English, I'm reluctant to train her to be bilingual. An admiring student once asked me if I spoke my native language. I was tempted to say, "Oh yes, we speak Potawatomi at home"—me, the dog, and the Post-it

notes. Our teacher tells us not to be discouraged and thanks us every time a word is spoken—thanks us for breathing life into the language, even if we only speak a single word. “But I have no one to talk to,” I complain. “None of us do,” he reassures me, “but someday we will.”

So I dutifully learn the vocabulary but find it hard to see the “heart of our culture” in translating *bed* and *sink* into Potawatomi. Learning nouns was pretty easy; after all, I’d learned thousands of botanical Latin names and scientific terms. I reasoned that this could not be too much different—just a one-for-one substitution, memorization. At least on paper, where you can see the letters, this is true. Hearing the language is a different story. There are fewer letters in our alphabet, so the distinction among words for a beginner is often subtle. With the beautiful clusters of consonants of *zh* and *mb* and *shwe* and *kwe* and *mshk*, our language sounds like wind in the pines and water over rocks, sounds our ears may have been more delicately attuned to in the past, but no longer. To learn again, you really have to listen.

To actually *speak*, of course, requires verbs, and here is where my kindergarten proficiency at naming things leaves off. English is a noun-based language, somehow appropriate to a culture so obsessed with things. Only 30 percent of English words are verbs, but in Potawatomi that proportion is 70 percent. Which means that 70 percent of the words have to be conjugated, and 70 percent have different tenses and cases to be mastered.

European languages often assign gender to nouns, but Potawatomi does not divide the world into masculine and feminine. Nouns and verbs both are animate and inanimate. You hear a person with a word that is completely different from the one with which you hear an airplane. Pronouns, articles, plurals, demonstratives, verbs—all those syntactical bits I never could keep straight in high school English are all aligned in Potawatomi to provide different ways to speak of the living world and the lifeless one. Different verb forms, different plurals, different everything apply depending on whether what you are speaking of is alive.

No wonder there are only nine speakers left! I try, but the complexity makes my head hurt and my ear can barely distinguish between

words that mean completely different things. One teacher reassures us that this will come with practice, but another elder concedes that these close similarities are inherent in the language. As Stewart King, a knowledge keeper and great teacher, reminds us, the Creator meant for us to laugh, so humor is deliberately built into the syntax. Even a small slip of the tongue can convert “We need more firewood” to “Take off your clothes.” In fact, I learned that the mystical word *Puhpowee* is used not only for mushrooms, but also for certain other shafts that rise mysteriously in the night.

My sister’s gift to me one Christmas was a set of magnetic tiles for the refrigerator in Ojibwe, or Anishinabemowin, a language closely related to Potawatomi. I spread them out on my kitchen table looking for familiar words, but the more I looked, the more worried I got. Among the hundred or more tiles, there was but a single word that I recognized: *megwech*, thank you. The small feeling of accomplishment from months of study evaporated in a moment.

I remember paging through the Ojibwe dictionary she sent, trying to decipher the tiles, but the spellings didn’t always match and the print was too small and there are way too many variations on a single word and I was feeling that this was just way too hard. The threads in my brain knotted and the harder I tried, the tighter they became. Pages blurred and my eyes settled on a word—a verb, of course: “to be a Saturday.” *Pfft!* I threw down the book. Since when is *Saturday* a verb? Everyone knows it’s a noun. I grabbed the dictionary and flipped more pages and all kinds of things seemed to be verbs: “to be a hill,” “to be red,” “to be a long sandy stretch of beach,” and then my finger rested on *wiikwegamaa*: “to be a bay.” “Ridiculous!” I ranted in my head. “There is no reason to make it so complicated. No wonder no one speaks it. A cumbersome language, impossible to learn, and more than that, it’s all wrong. A bay is most definitely a person, place, or thing—a noun and not a verb.” I was ready to give up. I’d learned a few words, done my duty to the language that was taken from my grandfather. Oh, the ghosts of the missionaries in the boarding schools must have been rubbing their hands in glee at my frustration. “She’s going to surrender,” they said.

And then I swear I heard the zap of synapses firing. An electric current sizzled down my arm and through my finger, and practically scorched the page where that one word lay. In that moment I could smell the water of the bay, watch it rock against the shore and hear it sift onto the sand. A bay is a noun only if water is *dead*. When *bay* is a noun, it is defined by humans, trapped between its shores and contained by the word. But the verb *wiikwegamaa*—to *be* a bay—releases the water from bondage and lets it live. “To be a bay” holds the wonder that, for this moment, the living water has decided to shelter itself between these shores, conversing with cedar roots and a flock of baby mergansers. Because it could do otherwise—become a stream or an ocean or a waterfall, and there are verbs for that, too. To be a hill, to be a sandy beach, to be a Saturday, all are possible verbs in a world where everything is alive. Water, land, and even a day, the language a mirror for seeing the animacy of the world, the life that pulses through all things, through pines and nuthatches and mushrooms. *This* is the language I hear in the woods; this is the language that lets us speak of what wells up all around us. And the vestiges of boarding schools, the soap-wielding missionary wraiths, hang their heads in defeat.

This is the grammar of animacy. Imagine seeing your grandmother standing at the stove in her apron and then saying of her, “Look, it is making soup. It has gray hair.” We might snicker at such a mistake, but we also recoil from it. In English, we never refer to a member of our family, or indeed to any person, as *it*. That would be a profound act of disrespect. *It* robs a person of selfhood and kinship, reducing a person to a mere thing. So it is that in Potawatomi and most other indigenous languages, we use the same words to address the living world as we use for our family. Because they are our family.

To whom does our language extend the grammar of animacy? Naturally, plants and animals are animate, but as I learn, I am discovering that the Potawatomi understanding of what it means to be animate diverges from the list of attributes of living beings we all learned in Biology 101. In Potawatomi 101, rocks are animate, as are mountains and water and fire and places. Beings that are imbued with spirit, our

sacred medicines, our songs, drums, and even stories, are all animate. The list of the inanimate seems to be smaller, filled with objects that are made by people. Of an inanimate being, like a table, we say, “*What is it?*” And we answer *Dopwen yewe*. Table it is. But of apple, we must say, “*Who is that being?*” And reply *Mshimin yawe*. Apple that being is.

Yawe—the animate *to be*. I am, you are, s/he is. To speak of those possessed with life and spirit we must say *yawe*. By what linguistic confluence do Yahweh of the Old Testament and *yawe* of the New World both fall from the mouths of the reverent? Isn’t this just what it means, to be, to have the breath of life within, to be the offspring of Creation? The language reminds us, in every sentence, of our kinship with all of the animate world.

English doesn’t give us many tools for incorporating respect for animacy. In English, you are either a human or a thing. Our grammar boxes us in by the choice of reducing a nonhuman being to an *it*, or it must be gendered, inappropriately, as a *he* or a *she*. Where are our words for the simple existence of another living being? Where is our *yawe*? My friend Michael Nelson, an ethicist who thinks a great deal about moral inclusion, told me about a woman he knows, a field biologist whose work is among other-than-humans. Most of her companions are not two-legged, and so her language has shifted to accommodate her relationships. She kneels along the trail to inspect a set of moose tracks, saying, “Someone’s already been this way this morning.” “Someone is in my hat,” she says, shaking out a deerfly. Someone, not something.

When I am in the woods with my students, teaching them the gifts of plants and how to call them by name, I try to be mindful of my language, to be bilingual between the lexicon of science and the grammar of animacy. Although they still have to learn scientific roles and Latin names, I hope I am also teaching them to know the world as a neighborhood of nonhuman residents, to know that, as ecotheologian Thomas Berry has written, “we must say of the universe that it is a communion of subjects, not a collection of objects.”

One afternoon, I sat with my field ecology students by a *wiikwegamaa*

and shared this idea of animate language. One young man, Andy, splashing his feet in the clear water, asked the big question. “Wait a second,” he said as he wrapped his mind around this linguistic distinction, “doesn’t this mean that speaking English, thinking in English, somehow gives us permission to disrespect nature? By denying everyone else the right to be persons? Wouldn’t things be different if nothing was an *it*?”

Swept away with the idea, he said it felt like an awakening to him. More like a remembering, I think. The animacy of the world is something we already know, but the language of animacy teeters on extinction—not just for Native peoples, but for everyone. Our toddlers speak of plants and animals as if they were people, extending to them self and intention and compassion—until we teach them not to. We quickly retrain them and make them forget. When we tell them that the tree is not a *who*, but an *it*, we make that maple an object; we put a barrier between us, absolving ourselves of moral responsibility and opening the door to exploitation. Saying *it* makes a living land into “natural resources.” If a maple is an *it*, we can take up the chain saw. If a maple is a *her*, we think twice.

Another student countered Andy’s argument. “But we can’t say *he* or *she*. That would be anthropomorphism.” They are well-schooled biologists who have been instructed, in no uncertain terms, never to ascribe human characteristics to a study object, to another species. It’s a cardinal sin that leads to a loss of objectivity. Carla pointed out that “it’s also disrespectful to the animals. We shouldn’t project our perceptions onto them. They have their own ways—they’re not just people in furry costumes.” Andy countered, “But just because we don’t think of them as humans doesn’t mean they aren’t beings. Isn’t it even more disrespectful to assume that we’re the only species that counts as ‘persons’?” The arrogance of English is that the only way to be animate, to be worthy of respect and moral concern, is to be a human.

A language teacher I know explained that grammar is just the way we chart relationships in language. Maybe it also reflects our relationships with each other. Maybe a grammar of animacy could lead us to

whole new ways of living in the world, other species a sovereign people, a world with a democracy of species, not a tyranny of one—with moral responsibility to water and wolves, and with a legal system that recognizes the standing of other species. It's all in the pronouns.

Andy is right. Learning the grammar of animacy could well be a restraint on our mindless exploitation of land. But there is more to it. I have heard our elders give advice like “You should go among the standing people” or “Go spend some time with those Beaver people.” They remind us of the capacity of others as our teachers, as holders of knowledge, as guides. Imagine walking through a richly inhabited world of Birch people, Bear people, Rock people, beings we think of and therefore speak of as persons worthy of our respect, of inclusion in a peopled world. We Americans are reluctant to learn a foreign language of our own species, let alone another species. But imagine the possibilities. Imagine the access we would have to different perspectives, the things we might see through other eyes, the wisdom that surrounds us. We don't have to figure out everything by ourselves: there are intelligences other than our own, teachers all around us. Imagine how much less lonely the world would be.

Every word I learn comes with a breath of gratitude for our elders who have kept this language alive and passed along its poetry. I still struggle mightily with verbs, can hardly speak at all, and I'm still most adept with only kindergarten vocabulary. But I like that in the morning I can go for my walk around the meadow greeting neighbors by name. When Crow caws at me from the hedgerow, I can call back *Mno gishget andushukwe!* I can brush my hand over the soft grasses and murmur *Bozho mishkos*. It's a small thing, but it makes me happy.

I'm not advocating that we all learn Potawatomi or Hopi or Seminole, even if we could. Immigrants came to these shores bearing a legacy of languages, all to be cherished. But to become native to this place, if we are to survive here, and our neighbors too, our work is to learn to speak the grammar of animacy, so that we might truly be at home.

I remember the words of Bill Tall Bull, a Cheyenne elder. As a

young person, I spoke to him with a heavy heart, lamenting that I had no native language with which to speak to the plants and the places that I love. “They love to hear the old language,” he said, “it’s true.” “But,” he said, with fingers on his lips, “You don’t have to speak it here.” “If you speak it here,” he said, patting his chest, “They will hear you.”

Tending Sweetgrass

Wild meadow sweetgrass grows long and fragrant when it is looked after by humans. Weeding and care for the habitat and neighboring plants strengthens its growth.

MAPLE SUGAR MOON

*When Nanabozho, the Anishinaabe Original Man, our teacher, part man, part manido, walked through the world, he took note of who was flourishing and who was not, of who was mindful of the Original Instructions and who was not. He was dismayed when he came upon villages where the gardens were not being tended, where the fishnets were not repaired and the children were not being taught the way to live. Instead of seeing piles of firewood and caches of corn, he found the people lying beneath maple trees with their mouths wide open, catching the thick, sweet syrup of the generous trees. They had become lazy and took for granted the gifts of the Creator. They did not do their ceremonies or care for one another. He knew his responsibility, so he went to the river and dipped up many buckets of water. He poured the water straight into the maple trees to dilute the syrup. Today, maple sap flows like a stream of water with only a trace of sweetness to remind the people both of possibility and of responsibility. And so it is that it takes forty gallons of sap to make a gallon of syrup.**

Plink. On an afternoon in March, when the late winter sun is starting to strengthen and moving north a degree or so each day, the sap runs strong. *Plink.* The yard of our old farmhouse in Fabius, New York, is graced with seven Maples, big ones, planted almost two hundred years ago to shade the house. The largest tree is as wide at its base as our picnic table is long.

When we first moved here my daughters reveled in rooting through

* Adapted from oral tradition and Ritzenthaler and Ritzenthaler, 1983.

the loft above the old stable, a space full of the flotsam of almost two centuries of families before us. One day I found them playing with an entire village of little metal pup tents set up under the trees. “They’re going camping,” they said of their various dolls and stuffed animals, who were peeking out from under their shelter. The loft was full of such “tents” that fit over old-time sap buckets to keep out the rain and snow during sugaring season. When the girls discovered what these little tents were for, of course they wanted to make maple syrup. We scrubbed out the mouse droppings and readied the buckets for spring.

During that first winter I read up on the whole process. We had buckets and covers, but no spiles—the spouts you need to drive into the tree to allow the sap out. But we live in Maple Nation and a nearby hardware store carried all things maple sugaring. *All* things: molds for forming maple sugar leaves, evaporators of every size, miles of rubber tubing, hydrometers, kettles, filters, and jars—none of which I could afford. But tucked away in the back they had old-fashioned spiles, which hardly anyone wants anymore. I got a whole box for seventy-five cents each.

Sugaring has changed over the years. Gone are the days of emptying buckets and sledging barrels of sap through the snowy woods. In many sugaring operations, plastic tubing runs right from the trees to the sugar house. But there are still purists out there who cherish the *plink* of sap into a metal bucket, and that requires a spile. One end is formed into a tube like a drinking straw, which you tap into a hole drilled in the tree. The tube then opens into a trough about four inches long. And at the base there is a handy hook on which to hang the bucket. I bought a big clean garbage can to store the sap and we were ready. I didn’t think we’d need all that storage space, but better to be prepared.

In a climate where winter lasts six months, we always search assiduously for signs of spring, but never more eagerly than after we decided to make syrup. The girls ask every day, “Can we start yet?” But our beginning was entirely determined by the season. For the sap to run you need a combination of warm days and freezing nights. *Warm* is a relative term, of course, thirty-five to forty-two degrees, so that the sun

thaws the trunk and starts the flow of sap inside. We watch the calendar and the thermometer, and Larkin asks, “How do the trees know it’s time if they can’t see the thermometer?” Indeed, how does a being without eyes or nose or nerves of any kind know what to do and when to do it? There are not even leaves out to detect the sun; every bit of the tree, except the buds, is swathed in thick, dead bark. And yet the trees are not fooled by a midwinter thaw.

The fact is, Maples have a far more sophisticated system for detecting spring than we do. There are photosensors by the hundreds in every single bud, packed with light-absorbing pigments called phytochromes. Their job is to take the measure of light every day. Tightly furled, covered in red-brown scales, each bud holds an embryonic copy of a maple branch, and each bud wants desperately to someday be a full-fledged branch, leaves rustling in the wind and soaking up sun. But if the buds come out too soon they’ll be killed by freezing. Too late and they’ll miss the spring. So the buds keep the calendar. But those baby buds need energy for their growth into branches—like all newborns, they are hungry.

We who lack such sophisticated sensors look for other signs. When hollows appear in the snow around the tree bases, I start to think it’s tapping time. The dark bark absorbs the growing heat of the sun and then radiates it back to slowly melt the snow that has lain there all winter. When those circles of bare ground appear, that’s when the first drops of sap will plop onto your head from a broken branch in the canopy.

And so with drill in hand we circle our trees searching out just the right spot, three feet up, on a smooth face. Lo and behold, there are scars of past taps long healed over, made by whoever had left those sap buckets in our loft. We don’t know their names or their faces, but our fingers rest right where theirs had been and we know what they too were doing one morning in April long ago. And we know what they had on their pancakes. Our stories are linked in this run of sap; our trees knew them as they know us today.

The spiles begin to drip almost as soon as we tap them into place. The first drops splat onto the bottom of the bucket. The girls slide the

tented covers on, which makes the sound echo even more. Trees of this diameter could accept six taps without damage, but we don't want to be greedy and only place three. By the time we're done setting them up, the first bucket is already singing a different tune, the *plink* of another drop into the half inch of sap. All day long they change pitch as the buckets fill, like water glasses of different pitch. *Plink, ploink, plonk*—the tin buckets and their tented tops reverberate with every drop and the yard is singing. This is spring music as surely as the cardinal's insistent whistle.

My girls watch in fascination. Each drop is as clear as water but somehow thicker, catching the light and hanging for a second at the end of the spile, growing invitingly into a larger and larger drop. The girls stretch out their tongues and slurp with a look of bliss, and unaccountably I am moved to tears. It reminds me of when I alone fed them. Now, on sturdy young legs, they are nursed by a maple—as close as they can come to being suckled by Mother Earth.

All day long the buckets fill and by evening they are brimming. The girls and I haul all twenty-one to the big garbage can and pour until it is almost full. I had no idea there would be so much. The girls rehang the buckets while I build the fire. Our evaporator is just my old canning kettle, set on an oven rack, spanning stacks of cinder blocks scavenged from the barn. It takes a long time to heat up a kettle of sap and the girls lose interest pretty quickly. I am in and out of the house, keeping fires going in both places. When I tuck them into bed that night, they are full of anticipation of syrup by morning.

I set up a lawn chair on the packed-down snow next to the fire, feeding it constantly to keep up a good boil in the now-freezing night. Steam billows from the pot, covering and uncovering the moon in the dry, cold sky.

I taste the sap as it boils down, and with every passing hour it is discernibly sweeter, but the yield from this four-gallon kettle will be nothing more than a skin of syrup on the bottom of the pan, scarcely enough for one pancake. So as it boils down I add more fresh sap from the garbage can, hoping to have just one cup of syrup by morning. I

add wood, then wrap myself back in blankets, dozing until I can add more logs or sap.

I don't know what time I woke, but I was cold and stiff in my lawn chair, and the fire was burnt to embers, leaving the sap lukewarm. Beaten, I went inside to bed.

When I returned in the morning, I found the sap in the garbage can frozen hard. As I got the fire going again, I remembered something I had heard about how our ancestors made maple sugar. The ice on the surface was pure water, so I cracked it and threw it on the ground like a broken window.

People of the Maple Nation made sugar long before they possessed trade kettles for boiling. Instead, they collected sap in birch bark pails and poured it into log troughs hollowed from basswood trees. The large surface area and shallow depth of the troughs was ideal for ice formation. Every morning, ice was removed, leaving a more concentrated sugar solution behind. The concentrated solution could then be boiled to sugar with far less energy required. The freezing nights did the work of many cords of firewood, a reminder of elegant connections: maple sap runs at the one time of year when this method is possible.

Wooden evaporating dishes were placed on flat stones over the coals of a fire that burned night and day. In the old times, families would all move together to “sugar camp,” where firewood and equipment had been stored the year before. Grandmothers and the youngest babies would be pulled on toboggans through the softening snow so that all could attend to the process—it took all the knowledge and all the arms to make sugar. Most of the time was spent stirring, good storytelling time when folks from the dispersed winter camps came together. But there were also pulses of furious activity: when the syrup reached just the right consistency, it was beaten so that it would solidify in the desired way, into soft cakes, hard candy, and granulated sugar. The women stored it in birch bark boxes called *makaks*, sewn tight with spruce root. Given birch bark's natural antifungal preservatives, the sugars would keep for years.

It is said that our people learned to make sugar from the squirrels. In

late winter, the hungry time, when caches of nuts are depleted, squirrels take to the treetops and gnaw on the branches of sugar maples. Scraping the bark allows sap to exude from the twig, and the squirrels drink it. But the real goods come the next morning, when they follow the same circuit they made the day before, licking up the sugar crystals that formed on the bark overnight. Freezing temperatures cause the water in the sap to sublime, leaving a sweet crystalline crust like rock candy behind, enough to tide them over through the hungriest time of year.

Our people call this time the Maple Sugar Moon, *Zizibaskwet Giizis*, The month before is known as the Hard Crust on Snow Moon. People living a subsistence lifestyle also know it as the Hunger Moon, when stored food has dwindled and game is scarce. But the maples carried the people through, provided food just when they needed it most. They had to trust that Mother Earth would find a way to feed them even in the depths of winter. But mothers are like that. In return, ceremonies of thanksgiving are held at the start of the sap run.

The Maples each year carry out their part of the Original Instructions, to care for the people. But they care for their own survival at the same time. The buds that sensed the incipient turn of the season are hungry. For shoots that are only one millimeter long to become full-fledged leaves, they need food. So when the buds sense spring, they send a hormonal signal down the trunk to the roots, a wake-up call, telegraphed from the light world to the underworld. The hormone triggers the formation of amylase, the enzyme responsible for cleaving large molecules of starch stored in the roots into small molecules of sugar. When the concentration of sugar in the roots begins to grow, it creates an osmotic gradient that draws water in from the soil. Dissolved in this water from the spring-wet earth, the sugar streams upward as rising sap to feed the buds. It takes a lot of sugar to feed people and buds, so the tree uses its sapwood, the xylem, as the conduit. Sugar transport is usually restricted to the thin layer of phloem tissue under the bark. But in spring, before there are leaves to make their own sugar, the need is so great that xylem is called into duty as well. At no other time of year does sugar move this way, only now when it is needed. Sugar flows upstream for a few weeks in the spring. But when

the buds break and leaves emerge, they start making sugar on their own and the sapwood returns to its work as the water conduit.

Because the mature leaves make more sugar than they can use right away, the sugar stream starts to flow in the opposite direction, from leaves back to roots, through the phloem. And so the roots, which fed the buds, are now fed in return by the leaves all summer long. The sugar is converted back to starch, stored in the original “root cellar.” The syrup we pour over pancakes on a winter morning is summer sunshine flowing in golden streams to pool on our plates.

Night after night I stayed up tending the fire, boiling our little kettle of sap. All day long the *plink plink plink* of sap filled the buckets and the girls and I gathered them after school to pour into the collecting can. The trees gave sap much faster than I could boil it so we bought another garbage can to hold the excess. And then another. Eventually we pulled the spiles from the trees to stop the flow and avoid wasting the sugars. The end result was terrible bronchitis from sleeping in a lawn chair in the driveway in March and three quarts of syrup, a little bit gray with wood ash.

When my daughters remember our sugaring adventure now, they roll their eyes and groan, “That was *so* much work.” They remember hauling branches to feed the fire and slopping sap on their jackets as they carried heavy buckets. They tease me about being a wretched mother who wove their connection to the land through forced labor. They *were* awfully little to be doing the work of a sugaring crew. But they also remember the wonder of drinking sap straight from the tree. Sap, but not syrup. Nanabozho made certain that the work would never be too easy. His teachings remind us that one half of the truth is that the earth endows us with great gifts, the other half is that the gift is not enough. The responsibility does not lie with the maples alone. The other half belongs to us; we participate in its transformation. It is our work, and our gratitude, that distills the sweetness.

Night after night I sat by the fire, the girls tucked safely in bed, the rustle of the fire and the bubbling sap a lullaby. Transfixed by the fire,

I hardly noticed the sky silver as the Maple Sugar Moon rose in the east. So bright on a clear freezing night, it threw tree shadows against the house—bold black embroidery around the windows where the girls lay sleeping, the shadows of the twin trees. These two, perfectly matched in girth and form, stand centered in front of the house by the edge of the road, their shadows framing the front door like dark columns of a maple portico. They rise in unison without a branch until they reach the roofline, where they spread like an umbrella. They grew up with this house, shaped by its protection.

There was a custom in the mid-eighteen hundreds of planting twin trees to celebrate a marriage and the starting of a home. The stance of these two, just ten feet apart, recalls a couple standing together on the porch steps, holding hands. The reach of their shade links the front porch with the barn across the road, creating a shady path of back and forth for that young family.

I realize that those first homesteaders were not the beneficiaries of that shade, at least not as a young couple. They must have meant for their people to stay here. Surely those two were sleeping up on Cemetery Road long before the shade arched across the road. I am living today in the shady future they imagined, drinking sap from trees planted with their wedding vows. They could not have imagined me, many generations later, and yet I live in the gift of their care. Could they have imagined that when my daughter Linden was married, she would choose leaves of maple sugar for the wedding giveaway?

Such a responsibility I have to these people and these trees, left to me, an unknown come to live under the guardianship of the twins, with a bond physical, emotional, and spiritual. I have no way to pay them back. Their gift to me is far greater than I have ability to reciprocate. They're so huge as to be nearly beyond my care, although I do scatter granules of fertilizer at their feet and turn the hose on them in summer drought. Perhaps all I can do is love them. All I know to do is to leave another gift, for them and for the future, those next unknowns who will live here. I heard once that Maori people make beautiful wood

sculptures that they carry long distances into the forest and leave there as a gift to the trees. And so I plant Daffodils, hundreds of them, in sunny flocks beneath the Maples, in homage to their beauty and in reciprocity for their gift.

Even now, as the sap rises, so too the Daffodils rise underfoot.

WITCH HAZEL

As told through the eyes of my daughter.

November is not a time for flowers, the days short and cold. Heavy clouds drag at my mood, and sleet like a muttered curse propels me indoors—I am reluctant to venture out again. So when the sun breaks through for that rare yellow day, maybe the last before the snow falls, I have to go. Because the woods are quiet this time of year without leaves or birds, the buzz of a bee seems inordinately loud. Intrigued, I follow her path—what could bring her out in November? She makes directly for bare branches, which, when I look more closely, are strewn with yellow flowers—Witch Hazel. The flowers are a ragged affair: five long petals, each like a scrap of fading yellow cloth that snagged on the branch, torn strips that wave in the breeze. But, *oh* are they welcome, a spot of color when months of gray lie ahead. A last hurrah before winter that suddenly reminds me of a November long ago.

The house had stood empty since she left. The cardboard Santas she had pasted on the tall windows were faded from shafts of summer sun and plastic poinsettias on the table were draped in cobwebs. You could smell that the mice ransacked the pantry while the Christmas ham turned to mounds of mold in the icebox after the power was shut off. Outside on the porch a wren built its nest in the lunch box again, awaiting her return. Asters bloomed in profusion under the sagging clothesline, where a gray cardigan was still pinned.

I first met Hazel Barnett when I was walking the fields in Kentucky, looking for wild blackberries with my mother. We were bent to our picking when I heard a high voice from the hedgerow call, “Howdy-do. Howdy-do.” There at the fence stood the oldest woman I’d ever seen. Slightly afraid, I took my mother’s hand as we walked over to greet her. She supported herself by leaning against the fence among the pink and burgundy hollyhocks. Her iron-gray hair was drawn into a bun at the back of her neck with a corona of white wisps standing out like sun rays around her toothless face.

“I like to see yer light at night,” she said. “It feels real neighborly. I seen y’all out walkin’ and come to say hi-dee.” My mother introduced herself, explained we’d moved in a few months ago. “And who is this lil’ bundle of joy?” she asked, leaning over the barbed wire to pinch my cheek. The fence pressed into the loose breast of her housedress, where pink and purple flowers like the hollyhocks were fading from many washings. She wore bedroom slippers outside in the garden, something my mother would never allow. She stuck her wrinkled old hand over the fence, veiny and crooked with a wire-thin band of gold loose on her ring finger. I’d never heard of a person named Hazel, but I’d heard of Witch Hazel and was quite certain that this must be the witch herself. I held my mother’s hand even tighter.

I suppose, given the way she is with plants, there was a time when some might have called her “witch.” And there *is* something eerie about a tree that flowers so far out of season and then spits its seeds—shiny pearls as black as midnight—twenty feet into the quiet fall woods, with a sound like an elfin footfall.

She and my mother became unlikely friends, trading recipes and garden tips. By day my mother was a professor at the college in town, sitting at her microscope, writing scientific articles. But spring twilight found her barefoot in the garden, planting beans and helping me fill my pail with earthworms that were severed by her shovel. I thought I could nurse them back to health in the worm hospital I constructed beneath the irises. She encouraged me in this, always saying, “There is no hurt that can’t be healed by love.”

Before dark many evenings, we would wander across the pasture to the fence and meet Hazel. "I do like to see your light in the window," she said. "There ain't nothing better than a good neighbor." I listened while they discussed putting stove ash at the base of tomato plants to keep off cutworms or Mama bragged on how fast I was learning to read. "Lord, she's a quick study, ain't you, my little honeybee?" Hazel said. Sometimes she had a wrapped peppermint in her dress pocket for me, the cellophane old and soft around it.

The visits progressed from the fence line to the front porch. When we baked, we would take over a plate of cookies and sip lemonade on her sagging stoop. I never liked to go in the house, an overwhelming jumble of old junk, trash bags, cigarette smoke, and what I now know as the smell of poverty. Hazel lived in the little shotgun house with her son Sam and daughter Janie. Janie was, as her mother explained, "simple," on account of she came late in life, her mother's last child. She was kind and loving and always wanting to smother my sister and me in her deep, soft arms.

Sam was disabled, couldn't work but received some veteran's benefits and pension from the coal company that they all lived on. Barely. When he was well enough to go fishing, he would bring us big catfish from the river. He coughed like crazy but had twinkling blue eyes and a world of stories, having been overseas in the war. Once he brought us a whole bucket of blackberries he'd picked along the railroad track. My mom tried to refuse that big pail as too generous a gift. "Why, don't talk nonsense," Hazel said. "They aren't my berries. The Lord done made these things for us to share."

My mother loved to work. For her, a good time was building stone walls or clearing brush. On occasion, Hazel would come over and sit in a lawn chair under the oaks while Mama stacked stones or split kindling. They would just talk about this and that, Hazel telling about how she liked a good woodpile, especially when she used to take in washing to earn a little extra. She needed a goodly pile to fuel her washtubs. She had worked as a cook in a place down by the river and she shook her head at the number of platters she could carry at one time. Mama

would tell about her students or a trip she had taken and Hazel would wonder at the very idea of flying in an airplane.

And Hazel would tell about the time she was called out to deliver a baby in a snowstorm, or how people would come to her door for healing herbs. She said how some other lady professor had once come with a tape recorder to talk to her and was going to put her in a book, on account of all the old ways she knew. But the professor had never come back and Hazel had never seen the book. I half listened to talk about gathering hickory nuts under the big trees or carrying a lunch pail to her daddy, who worked making barrels at the distillery down by the river, but my mother was charmed by Hazel's stories.

I know my mother loved being a scientist, but she always said that she was born too late. Her real calling, she was sure, was to be a nineteenth-century farmwife. She sang while she canned tomatoes, stewed peaches, punched down the dough for bread, and was insistent that I learn how, too. When I think back on her friendship with Hazel, I suppose that the deep respect they had for each other was rooted in such things: both were women with feet planted deep in the earth who took pride in a back strong enough to carry a load for others.

Mostly I heard their talk as a drone of grown-up chatter, but one time, when my mother was coming across the yard with a big armload of wood, I saw Hazel drop her head in her hands and cry. "When I lived at home," she said, "I could carry a load like that. Why, I could carry a bushel of peaches on one hip and a baby on the other without hardly trying. But now it's all gone, gone with the wind."

Hazel was born and raised over in Jessamine County, Kentucky, just down the road. To hear her talk, though, it might have been hundreds of miles away. She couldn't drive, nor could Janie or Sam, so her old house was as lost to her as if it lay across the Great Divide.

She had come here to live with Sam when he had a heart attack on Christmas Eve. She loved Christmas—all the folks coming by, cooking a big dinner—but she dropped everything that Christmas, locked her door, and came to live with her son and look after him. She hadn't been back home since, but you could see that her heart

ached for the place—she would get a faraway look in her eyes when she spoke of it.

My mother understood this, the longing for home. She was a northern girl, born in the shadow of the Adirondacks. She had lived lots of places for graduate school and research, but always thought she'd go back home. I remember the fall she cried for missing the blaze of red maple. She was transplanted to Kentucky by dint of a good job and my father's career, but I know she missed her own folks and the woods of home. The taste of exile was as much in her mouth as it was in Hazel's.

As Hazel grew older, she got sadder and would talk more and more about the old times, the things she would never see again: how tall and handsome her husband, Rowley, had been, how beautiful her gardens were. My mother once offered to take her back to see her old place, but she shook her head. "That's mighty nice of you, but I couldn't be beholden like that. Anyway, it's gone with the wind," she would say, "all gone." But one fall afternoon when the light was long and gold, she phoned up.

"Now, honey, I know yer hands and heart are full, but if there was any way you could see fit to drive me back to the old place, I'd be right thankful. I need to see to that roof before the snow flies." My mother and I picked her up and drove up the Nicholasville Road toward the river. It's all four-lane now, with a big span across the Kentucky River, so high you hardly know it's flowing, muddy, below you. At the old distillery, boarded up and empty now, we left the highway and drove down a little dirt road that angles back away from the river. Hazel began to cry in the backseat the minute we made the turn.

"Oh, my dear old road," she cried, and I patted her hand. I knew what to do, for I'd seen my mother cry just like this when she took me past the house where she had grown up. Hazel directed Mama past the ramshackle little houses, a few stove-in trailers, and remnants of barns. We stopped before a grassy swale under a thick grove of black locust trees. "Here it is," she said, "my home sweet home." She talked like that, like it was right out of a book. Before us was an old schoolhouse with long chapel windows set all around and two doors at the front, one for boys and one for girls. It was silvery gray with just a few swipes of whitewash blurred across the clapboard.

Hazel was eager to get out and I had to hurry to get her walker to her before she stumbled in the tall grass. Pointing all the way at the spring house, the old chicken coop, she led Mama and me to the side door and up onto the porch. She fumbled in her big purse for the keys, but her hands were shaking so badly she asked me if I would unlock the door. I opened the tattered old screen door and the key slid easily into the padlock. I held the door back for her and she clumped inside and stopped. Just stopped and looked. It was quiet as a church. The air was cold inside and flowed out past me into the warm November afternoon. I started to go in, but my mother's hand on my arm stopped me. "Just let her be," her look said.

The room before us was like a picture book about the olden days. A big old woodstove sat along the back wall, cast iron frying pans hung alongside. Dishtowels were neatly hung on dowels over the dry sink, and once-white curtains framed the view of the grove outside. The ceilings were high, as befits an old schoolhouse, and festooned with garlands of tinsel, blue and silver, flickering in the breeze from the open door. Christmas cards outlined the doorframes, fixed with yellowing tape. The whole kitchen was decked out for Christmas, an oilcloth of a holiday print covered the table and plastic poinsettias swathed in cobwebs sat in jam jars as a centerpiece. The table was set for six places and there was still food on the plates, the chairs pushed back just as they were when dinner had been interrupted by the call from the hospital.

"What a sight," she said. "Let's put this all to rights." Suddenly Hazel became as businesslike as if she'd just walked into her house after supper and found it below her housewifely standards. She set her walker aside and began gathering up the dishes from the long kitchen table and carrying them over to the sink. My mother tried to slow her down by asking for a tour of the place and saying we could get to tidying another time. Hazel took us into the parlor, where the skeleton of a Christmas tree stood with a pile of needles on the floor below. The ornaments hung like orphans on the bare branches. There was a little red drum and silver plastic birds with paint worn off and stubs where their tails should be. It had been a cozy room; there were rocking chairs and a couch, a little spindle-leg table and gas lamps. An

old oak sideboard held a china pitcher and basin painted with roses. A hand-embroidered scarf, cross-stitched in pink and blue, ran the length of the sideboard. “My goodness,” she said, wiping the corner of her housedress over the thick layer of dust. “I’ve got to get after my dustin’ in here.”

While she and Mama looked at the pretty dishes in the sideboard, I wandered off to explore. I pushed one door open to a big unmade bed heaped with blankets thrown back. Beside it was what looked like a potty chair, only grown-up size. It didn’t smell very good in there and I quickly retreated, not wanting to be caught snooping around. Another door gave way to a bedroom with a beautiful patchwork quilt and more tinsel garlands draped over the mirror above the dresser where a hurricane lamp sat, all caked in soot.

Hazel leaned on my mother’s arm as we circled around the clearing outside, pointing out trees she had planted and flowerbeds long overgrown. At the back of the house, under the oaks, was a clump of bare gray branches erupting with a froth of stringy yellow blossoms. “Why lookee here, it’s my old medicine come to greet me,” she said and reached out to take the branch as if she was going to shake its hand. “I made me many a batch of this old witch hazel and folks would come to me for it, special. I’d cook up that bark in the fall and have it all winter to rub on aches and pains, burns and rashes—everybody wanted it. There ain’t hardly no hurt the woods don’t have medicine for.”

“That witch hazel,” she said, “it’s not just good for you outside, but inside too. Land sakes, flowers in November. The good Lord gave us witch hazel to remind us that there’s always somethin’ good even when it seems like there ain’t. It just lightens your heavy heart, is what it does.”

After that first visit, Hazel would often call on a Sunday afternoon and ask, “Would y’all like to go for a ride?” My mother thought it important that we girls go along. It was like her insistence that we learn to bake bread and plant beans—things that didn’t seem important then, but now I know differently. We got to pick hickory nuts from behind the old house, wrinkle our noses at the tilting outhouse, and root around in the barn for treasures while Mama and Hazel sat on

the porch and talked. Hung on a nail right beside her door was an old, black metal lunch box, open and lined with what looked like shelf paper. There were remnants of a bird's nest within. Hazel had brought along a small plastic bag filled with cracker crumbs, which she scattered on the porch rail.

"This little Jenny Wren has made her home here every year since Rowley passed on. This here was his lunch pail. Now she counts on me for house and home and I can't let her down." A lot of people must have counted on Hazel when she was young and strong. She took us driving down her road and we stopped at nearly every house but one. "Them are no count folks," she said, and looked away. The others seemed overjoyed to see Hazel again. My sister and I would follow the chickens around or pet the hound dogs while Mama and Hazel would visit with the neighbors.

These folks were very different from the ones we met at school or at parties at the college. One lady reached out to tap my teeth. "Those are mighty purty teeth you got," she said. I'd never thought that teeth were worthy of a compliment, but then I hadn't met people before who had so few. I mostly remember their kindness, though. They were ladies Hazel had sung with in the choir of the little white church under the pines. Ladies she had known since girlhood, and they cackled together about dances by the river and shook their heads sadly over the fate of kids who up and moved away. We'd go home in the afternoon with a basket of fresh eggs or a slice of cake for each of us and Hazel just beaming.

When winter began, our visits were fewer and the light seemed to go out of Hazel's eyes. She sat at our kitchen table one day and said, "I know I shouldn't ask the good Lord for nuthin more'n what I already got, but how I wish I could have just one more Christmas in my dear old home. But those days are gone. Gone with the wind." This was an ache for which the woods had no medicine.

We were not going north to my grandma and grandpa's for Christmas that year and my mother was taking it hard. It was still weeks until Christmas but already she was baking up a fury while we

girls strung popcorn and cranberries for the tree. She talked about how she would miss the snow, the smell of balsam, and her family. And then she got an idea.

It was to be a complete surprise. She got the house key from Sam and went to the old schoolhouse to see what she could do. She got on the phone to the Rural Electric Co-op and arranged to have Hazel's power reconnected, just for those few days. As soon as the lights came on, it became clear how dirty it all was. There was no running water, so we had to bring jugs of water from home to sponge things down. The job was bigger than us, so Mama enlisted the help of some fraternity boys from her classes at the college who needed a community service project. They sure got one: cleaning out that refrigerator rivaled any microbiology experiment.

We drove up and down Hazel's road, where I ran in to houses with handmade invitations for all her old friends. There weren't too many, so Mama invited the college boys and her friends, too. The house still had its Christmas decorations, but we made more, paper chains and candles, out of paper towel tubes. My dad cut a tree and set it up in the parlor with a box of lights stripped from the skeleton tree that had stood there before. We brought armloads of prickly red cedar boughs to decorate the tables and hung candy canes on the tree. The smell of cedar and peppermint filled the place where mold and mice had been only days ago. My mom and her friends baked plates of cookies.

The morning of the party, the heat was on, the tree lights lit, and one by one people started to arrive, clumping up the steps of the front porch. My sister and I played hostess while Mama drove off to get the guest of honor. "Hey, any of y'all feel like going for a ride?" Mama said, and bundled Hazel into her warm coat. "Why, where we goin'?" Hazel asked. Her face gleamed like a candle when she stepped into her "home sweet home" filled with light and friends. My mother pinned a Christmas corsage—a plastic bell with golden glitter that she had found on the dresser—to Hazel's dress. Hazel moved through her house like a queen that day. My father and my sister played their violins in the parlor, "Silent Night" and "Joy to the World," while I ladled out sweet

red punch. I don't remember much more about the party, except Hazel falling asleep on the way home.

Just a few years later, we left Kentucky to move back north. My mom was glad to be going home, to have her maples instead of oaks, but saying good-bye to Hazel was hard. She saved it for last. Hazel gave her a going-away present, a rocking chair and a little box with a couple of her old-time Christmas ornaments inside. A celluloid drum and a silver plastic bird, missing its tail feathers. My mother still hangs them on her tree every year and tells the story of that party as if it were the best Christmas she ever had. We got word that Hazel had died a couple of years after we moved.

"Gone, all gone with the wind," she would have said.

There are some aches witch hazel can't assuage; for those, we need each other. My mother and Hazel Barnett, unlikely sisters, I suppose, learned well from the plants they both loved—they made a balm for loneliness together, a strengthening tea for the pain of longing.

Now, when the red leaves are all down and the geese are gone, I go looking for witch hazel. It never lets me down, always carrying the memory of that Christmas and how their friendship was medicine for each other. I cherish a witch hazel kind of day, a scrap of color, a light in the window when winter is closing all around.

A MOTHER'S WORK

I wanted to be a good mother, that's all—like Skywoman maybe. Somehow this led me into hip waders filled with brown water. The rubber boots that were intended to keep the pond at bay now contain it. And me. And one tadpole. I feel a flutter at the back of my other knee. Make that two tadpoles.

When I left Kentucky to go house hunting in upstate New York, my two small daughters gave me an explicit wish list for our new home: trees big enough for tree forts, one apiece; a stone walk lined with pansies like the one in Larkin's favorite book; a red barn; a pond to swim in; a purple bedroom. The last request gave me some comfort. Their dad had just pulled up stakes, left the country—and us. He said that he no longer wanted a life with so much responsibility, so the responsibility was all mine. I was grateful that, if nothing else, I could at least paint a bedroom purple.

All winter long I looked at house after house, none of which made sense for either my budget or my hopes. Real estate listings—"3BR, 2B, raised ranch, landscaping"—are pretty thin on vital information like trees suitable for tree houses. I confess that I was thinking more about mortgages and school districts and whether I was going to end up in a trailer park at the end of the road. But the girls' wish list surfaced in my mind when the agent drove me to an old farmhouse surrounded by immense sugar maples, two with low, spreading branches perfect for tree houses. This was a possibility. But there was the matter of sagging shutters and a porch that hadn't seen level in half a century. On the

plus side, it sat on seven acres, including what was described as a trout pond, which was only a smooth expanse of ice surrounded by trees at the time. The house was empty, cold, and unloved, but as I opened doors to the musty rooms, wonder of wonders: the corner bedroom was the color of spring violets. It was a sign. This is where we would fall to earth.

We moved in that spring. Not long after, the girls and I cobbled together tree forts in the maples, one apiece. Imagine our surprise when the snow melted to reveal a flagstone walk overgrown with weeds leading to the front door. We met the neighbors, explored the hilltops with picnic lunches, planted pansies, and started to put down the roots of happiness. Being the good mother, good enough for two parents, seemed within my grasp. All that remained to complete the wish list for home was a swimmable pond.

The deed described a deep spring-fed pond, and a hundred years ago it might have been exactly that. One of my neighbors whose family has been here for generations told me that it was the favorite pond in the valley. In summer, after haying, the boys would park their wagons and hike up to the pond for a swim. "We'd throw off our clothes and jump in," he said. "The way it sits, no girls would be able to see us, buck naked as we were. And cold! That spring kept the water icy cold and it felt so good after working hay. We'd lie in the grass afterward, just to warm up." Our pond nestles in the hill up behind the house. The slopes rise around it on three sides and a copse of apple trees on the other side entirely shield it from view. At its back is a limestone cliff where rock was quarried to build my house more than two hundred years ago. It was hard to believe that anyone would dip even a toe in that pond today. My daughters certainly would not. It was so choked with green that you could not tell where weeds left off and water began.

The ducks didn't help. If anything, they were what you might politely call a major source of nutrient input. They were so cute in the feed store—just downy yellow fluff connecting outsize beaks and enormous orange feet, waddling around in a crate of wood chips. It was spring,

almost Easter, and all the good reasons not to take them home evaporated with the girls' delight. Wouldn't a good mother adopt ducklings? Isn't that what a pond is for?

We kept them in a cardboard box in the garage with a heat lamp, closely watched so neither box nor ducklings would ignite. The girls accepted full responsibility for their care and dutifully fed and cleaned them. I came home from work one afternoon to see them floating in the kitchen sink, quacking and dabbling, shaking water off their backs while the girls just beamed. The condition of the sink should have given me a clue of what was to come. For the next few weeks they ate and defecated with equal enthusiasm. But within a month we carried the box of six glossy white ducks up to the pond and released them.

They preened and splashed. All was well for the first few days, but apparently, in the absence of their own good mother to protect and teach them, they didn't have the essential survival skills for life outside the box. Every day there was one less duck; five remained, then four, and then finally three who had the right stuff to fend off foxes and snapping turtles and the marsh hawk who had taken to cruising the shore. These three flourished. They looked so placid, so pastoral gliding over the pond. But the pond itself began to get even greener than before.

They were perfect pets until winter came and their delinquent tendencies emerged. Despite the little hut we made for them—a floating A-frame lodge with a wraparound porch—despite the corn we showered around them like confetti, they were discontent. They developed a fondness for dog food and the warmth of my back porch. I would come out on a January morning to find the dog bowl empty and the dog cowering outside while three snowy-white ducks sat in a row on the bench, wiggling their tails in contentment.

It gets cold where I live. Really cold. Duck turds were frozen into coiled mounds like half-finished clay pots solidly affixed to my porch floor. It took an ice pick to chip them away. I would shoo them, close the porch door, and lay a trail of corn kernels back up to the pond, and they would follow in a gabbling line. But the next morning they'd be back.

Winter and a daily dose of duck splats must freeze up the part of the brain devoted to compassion for animals, for I began to hope for their demise. Unfortunately, I didn't have the heart to dispatch them, and who among our rural friends would welcome the dubious gift of ducks in the dead of winter? Even with plum sauce. I secretly contemplated spraying them with fox lure. Or tying slices of roast beef to their legs in hopes of interesting the coyotes that howled at the ridgetop. But instead I was a good mother; I fed them, rasped my shovel over the crust on the porch floor, and waited for spring. One balmy day they trundled back up to the pond and within a month they were gone, leaving piles of feathers like a drift of late snow on the shore.

The ducks were gone but their legacy lived on. By May the pond was a thick soup of green algae. A pair of Canada geese had settled in to take their place and raised a brood under the willows. One afternoon I walked up to see if the goose babies had sprouted pinfeathers yet, only to hear a distressed quacking. A fuzzy brown gosling out for a swim had gotten snared in the floating masses of algae. It was squawking and flapping its wings trying to get free. While I tried to think of how to rescue it, it gave a mighty kick and popped up to the surface, where it began to walk on the algal mat.

That was a moment of resolve for me. You should not be able to walk on a pond. It should be an invitation to wildlife, not a snare. The likelihood of making the pond swimmable, even for geese, seemed remote at best. But I am an ecologist, so I was confident that I could at least improve the situation. The word *ecology* is derived from the Greek *oikos*, the word for home. I could use ecology to make a good home for goslings and girls.

Like many an old farm pond, mine was the victim of eutrophication, the natural process of nutrient enrichment that comes with age. Generations of algae and lily pads and fallen leaves and autumn's apples falling into the pond built up the sediments, layering the once clean gravel at the bottom in a sheet of muck. All those nutrients fueled the growth of new plants, which fueled the growth of more new plants, in an accelerating cycle. This is the way for many ponds—the bottom

gradually fills in until the pond becomes a marsh and maybe someday a meadow and then a forest. Ponds grow old, and though I will too, I like the ecological idea of aging as progressive enrichment, rather than progressive loss.

Sometimes the process of eutrophication is accelerated by human activities: nutrient-rich runoff from fertilized fields or septic tanks ends up in the water, where it supports exponential growth of algae. My pond was buffered from such influences—its source was a cold spring coming out of the hill, and a swath of trees on the uphill side formed a nitrogen-grabbing filter for runoff from the surrounding pastures. My battle was not with pollution, but with time. Making my pond swimmable would be an exercise in turning back time. That's just what I wanted, to turn back time. My daughters were growing up too fast, my time as a mother slipping away, and my promise of a swimming pond yet to be fulfilled.

Being a good mother meant fixing the pond for my kids. A highly productive food chain might be good for frogs and herons, but not for swimming. The best swimming lakes are not eutrophic, but cold, clear, and oligotrophic, or poor in nutrients.

I carried my small solo canoe up to the pond to serve as a floating platform for algae removal. I envisioned scooping up the algae with a long-handled rake, filling the canoe as if it was a garbage scow, emptying it on the shore, and then going for a nice swim. But only the swimming part worked out—and it wasn't nice. As I tried to skim the algae, I discovered that they hung like sheer green curtains through the water. If you reach far out of a light canoe and try to lift a heavy mat of algae at the end of a rake, physics dictates that swimming will occur.

My attempts at skimming were useless. I was addressing only the symptoms of scum and not the cause. I read as much as I could about pond rehabilitation and weighed my options. To undo what time and ducks had accomplished I needed to remove nutrients from the pond, not just skim the foam. When I waded in the shallow end of the pond, the muck squished between my toes, but beneath it I could feel the clean gravel that was the pond's original basin. Maybe I could

dredge up the muck and cart it away in buckets. But when I brought my broadest snow shovel to scoop up the mud, by the time it reached the surface there was a brown cloud all around me and a mere handful of soil in the shovel. I stood in the water laughing out loud. Shoveling muck was like trying to catch wind in a butterfly net.

Next I used old window screens to make a sieve that we could lift up through the sediments. But the muck was far too fine and my improvised net came up empty. This was not ordinary mud. The organic matter in the sediments occurs as tiny particles, dissolved nutrients that flocculate in specks small enough to be bite-size snacks for zooplankton. Clearly, I was powerless to haul the nutrients out of the water. Fortunately, the plants were not.

A mat of algae is really nothing more than dissolved phosphorous and nitrogen made solid through the alchemy of photosynthesis. I couldn't remove nutrients by shoveling, but once they are fixed into the bodies of plants they can be forked out of the water with the application of biceps and bent back and carted away by the wheelbarrowful.

The average phosphate molecule in a farm pond has a cycling time of less than two weeks from the time it is absorbed out of the water, made into living tissue, is eaten or dies, decomposes, and is recycled back to feed yet another algal strand. My plan was to interrupt this endless recycling by capturing nutrients in plants and hauling them away before they could once again be turned into algae. I could slowly, steadily deplete the stores of nutrients circulating in the pond.

I'm a botanist by trade, and so of course I needed to know who these algae were. There are probably as many kinds of algae as there are species of tree, and I would do a disservice to their lives and to my task if I didn't know who they were. You wouldn't try to restore a forest without knowing what kind of trees you were working with, so I scooped up a jarful of green slime and took it to my microscope with the top screwed tightly to contain the smell.

I teased apart the slippery green wads into tiny wisps that would fit beneath my microscope. In this single tuft were long threads of *Cladophora*, shining like satin ribbons. Wound around them were

translucent strands of *Spirogyra*, in which the chloroplasts spiral like a green staircase. The whole green field was in motion, with iridescent tumbleweeds of *Volvox* and pulsing euglenoids stretching their way among the strands. So much life in a single drop of water, water that previously looked like scum in a jar. Here were my partners in restoration.

Progress was slow with pond restoration hours squeezed between years' worth of Girl Scout meetings, bake sales, camping trips, and a more-than-full-time job. All moms have treasured ways to spend the few precious hours they have to themselves, curling up with a book or sewing, but I mostly went to the water, the birds and the wind and the quiet were what I needed. This was one place where I somehow felt as if I could make things right. At school I taught ecology, but on a Saturday afternoon when the kids were off at a friend's, I got to *do* ecology.

After the canoe debacle, I decided it was wiser to stand on the shore with a rake and stretch out as far as I could reach. The rake brought sticks draped in *Cladophora* like a comb matted with long green hair. Every stroke of the rake combed up another sheet from the bottom and added to a quickly growing mound, which I had to get out of the watershed by moving it downhill from the pond. If I left it to rot on the shore, the nutrients released in decay would return to the pond in short order. I flung the wads of algae onto a sled—my kids' little red plastic toboggan—and dragged it up the steep bank to empty it into the waiting wheelbarrow.

I really didn't want to stand in the mucky ooze, so I worked cautiously from the edges in old sneakers. I could reach out and dredge up heaps of algae, but there was so much more just beyond my reach. Sneakers evolved to Wellingtons, extending my sphere of influence just enough for me to know that it was ineffective, and thus Wellingtons came to waders. But waders give you a false sense of security, and before long I reached just a little too far and felt the icy pond rush in over their tops. Waders are darn heavy when they fill up, and I found myself anchored in the muck. A good mother does not drown. The next time I just wore shorts.

I simply gave myself up to the task. I remember the liberation of just walking right in to my waist the first time, the lightness of my T-shirt floating around me, the swirl of the water against my bare skin. I finally felt at home. The tickles at my legs were just wisps of *Spirogyra*, the nudges just curious perch. Now I could see the algael curtains stretched out before me, much more beautiful than dangling at the end of my rake. I could see the way *Cladophora* bloomed from old sticks and watch diving beetles swim among them.

I developed a new relationship with mud. Instead of trying to protect myself from it, I became oblivious to it, noticing its presence only when I would go back to the house and see strands of algae caught in my hair or the water in the shower turning decidedly brown. I came to know the feel of the gravelly bottom below the muck, the sucking mud by the cattails and the cold stillness where the bottom dropped away from the shallows. Transformation is not accomplished by tentative wading at the edge.

One spring day my rake came up draped with a mass of algae so heavy it bent the bamboo handle. I let it drip to lighten the load and then flipped it onto the shore. I was about to go for another load when I heard a wet smacking from the pile, the slap of a watery tail. A lump was wiggling in a frenzy below the surface of the heaped algae. I picked the threads apart, opening the weave to see what was struggling within. A plump brown body; a bullfrog tadpole as big as my thumb was caught there. Tadpoles can swim easily through a net that is suspended in the water, but when the net is drawn up by the rake it collapses around them like a purse seine. I picked him up, squishy and cold, between thumb and forefinger and tossed him back into the pond, where he rested, suspended for a moment in the water, and then swam off. The next rake came up in a smooth dripping sheet studded with so many tadpoles that they looked like nuts caught in a tray of peanut brittle. I bent and untangled them, every one.

This was a problem. There was so much to rake. I could dredge the algae out, slap it into piles, and be done with it. I could work so much faster if I didn't have to stop and pick tadpoles from the tangle of

every moral dilemma. I told myself that my intention was not to hurt them; I was just trying to improve the habitat and they were the collateral damage. But my good intentions meant nothing to tadpoles if they struggled and died in a compost pile. I sighed, but I knew what I had to do. I was driven to this chore by a mothering urge, to make a swimmable pond. In the process, I could hardly sacrifice another mother's children, who, after all, already have a pond to swim in.

Now I was not only a pond raker, but also a tadpole plucker. It was amazing what I found in the mesh of algae: predaceous diving beetles with sharp black mandibles; small fish; dragonfly larvae. I stuck my fingers in to free a wiggle and felt a sharp pain like a bee sting. My hand flinched back with a big crayfish attached to my fingertip. A whole food web was dangling from my rake, and those were just the critters I could see, just the tip of the iceberg, the top of the food chain. Under my microscope, I had seen the web of algae teeming with invertebrates—copepods, daphnia, whirling rotifers, and creatures so much smaller: threadlike worms, globes of green algae, protozoans with cilia beating in unison. I knew they were there, but I couldn't possibly pick them out. So I bargained with myself over the chain of responsibility and tried to convince myself that their demise served a greater good.

Raking a pond provides you with a lot of mental free space for philosophizing. As I raked and plucked, it challenged my conviction that all lives are valuable, protozoan or not. As a theoretical matter, I hold this to be true, but on a practical level it gets murky, the spiritual and the pragmatic bumping heads. With every rake I knew that I was prioritizing. Short, single-cell lives were ended because I wanted a clear pond. I'm bigger, I have a rake, so I win. That's not a worldview I readily endorse. But it didn't keep me awake at night, or halt my efforts; I simply acknowledged the choices I was making. The best I could do was to be respectful and not let the small lives go to waste. I plucked out whatever wee beasties I could and the rest went into the compost pile, to start the cycle again as soil.

At first I hauled carts of freshly raked algae, but I soon realized that trundling hundreds of pounds of water was hard work. I learned

to heap the algae on the shore and watch it dribble moisture back to the pond. In the following days the algae bleached in the sun into light papery sheets, easily lifted into the wheelbarrow. Filamentous algae like *Spirogyra* and *Cladophora* have a nutrient content equivalent to that of high-quality forage grasses. I was hauling away the equivalent nutrient load of bales of good dairy hay. Load after load of algae domed up in the compost pile, on its way to making good black humus. The pond was literally feeding the garden, *Cladophora* reborn as carrots. I began to see a difference in the pond. A span of days would go by when the surface was clear, but the fuzzy green mats always returned.

I began to notice other sponges for my pond's excess nutrients in addition to the algae. All along the shore, the willows reached their feathery red roots into the shallow water to troll for nitrogen and phosphorous to pull into their root systems to become leaves and willow withes. I came along the shore with my loppers and cut the willows, stem by swaying stem. Dragging the piles of willow branches away, I was removing storehouses of nutrients they had sucked from the pond bottom. The brush pile in the field grew taller, soon to be browsed by cottontails and redistributed far and wide as rabbit droppings. Willow responds vigorously to cutting and sends up long straight shoots that can tower over my head in a single growing season. I left the thickets away from the water for rabbits and songbirds, but those right at the shore I cut and bundled for making baskets. The larger stems became the foundation for garden trellises for pole beans and morning glories. I also gathered mint and other herbs along the banks. As with the willows, the more I picked, the more it seemed to grow back. Everything I took moved the pond a step closer to clear. Every cup of mint tea struck a blow for nutrient removal.

Cleaning the pond by cutting willows really seemed to help. I cut with renewed enthusiasm, moving in a mindless rhythm with my loppers—*snick, snick, snick*—clearing whole swaths of shoreline as willow stems fell at my feet. Then something, perhaps a movement glimpsed out of the corner of my eye, perhaps a silent plea, made me stop. In the last stem left standing was a beautiful little nest, a cup

woven sweetly of *Juncus* rushes and threadlike roots around a fork in the tree, a marvel of homemaking. I peered inside and there were three eggs the size of lima beans lying in a circlet of pine needles. What a treasure I had nearly destroyed in my zeal to “improve” the habitat. Nearby, the mother, a yellow warbler, flitted in the bushes, calling in alarm. I was so quick and single-minded about what I was doing that I forgot to look. I forgot to acknowledge that creating the home that I wanted for my children jeopardized the homemaking of other mothers whose intents were no different from mine.

It came to me once again that restoring a habitat, no matter how well intentioned, produces casualties. We set ourselves up as arbiters of what is good when often our standards of goodness are driven by narrow interests, by what we want. I piled the cut brush back up near the nest in some semblance of the protective cover I had destroyed and sat on a rock, concealed on the other side of the pond, to see if she would come back. What did she think as she watched me come closer and closer, laying waste to the home she had carefully chosen, threatening her family? There are powerful forces of destruction loose in the world, advancing inexorably toward her children and mine. The onslaught of progress, well-intentioned to improve human habitat, threatens the nest I’ve chosen for my children as surely as I threatened hers. What does a good mother do?

I continued to clear out the algae, let the silt settle, and it looked better. But I went back a week later to a foamy green mass. It’s kind of like cleaning the kitchen: you get everything put away, wipe off the countertops, and before you know it there are drips of peanut butter and jelly everywhere and you have to do it all over again. Life adds up. It’s eutrophic. But I could see ahead to a time when my kitchen would stay too clean. I would have an oligotrophic kitchen. Without the girls to mess it up, I would be longing for leftover cereal bowls, for a eutrophic kitchen. For signs of life.

I pull my red toboggan to the other end of the pond and start to work in the shallows. Immediately, my rake gets stalled with a heavy

load of weeds that I drag slowly to the surface. This mat has a different weight and texture than the slippery sheets of *Cladophora* that I've been dredging. I lay it down on the grass for a closer look and spread the film with my fingers until it stretches into what looks like a green fishnet stocking—a fine mesh network like a drift net suspended in the water. This is *Hydrodictyon*.

I stretch it between my fingers and it glistens, almost weightless after the water has drained away. As orderly as a honeycomb, *Hydrodictyon* is a geometric surprise in the seemingly random stew of a murky pond. It hangs in the water, a colony of tiny nets all fused together.

Under the microscope, the fabric of *Hydrodictyon* is made up of tiny six-sided polygons, a mesh of linked green cells that surround the holes of the net. It multiplies quickly because of a unique means of clonal reproduction. Inside each of the net cells, daughter cells are born. They arrange themselves into hexagons, neat replicas of the mother net. In order to disperse her young, the mother cell must disintegrate, freeing the daughter cells into the water. The floating newborn hexagons fuse with others, forging new connections and weaving a new net.

I look out at the expanse of *Hydrodictyon* visible just below the surface. I imagine the liberation of new cells, the daughters spinning off on their own. What does a good mother do when mothering time is done? As I stand in the water, my eyes brim and drop salt tears into the freshwater at my feet. Fortunately, my daughters are not clones of their mother, nor must I disintegrate to set them free, but I wonder how the fabric is changed when the release of daughters tears a hole. Does it heal over quickly, or does the empty space remain? And how do the daughter cells make new connections? How is the fabric rewoven?

Hydrodictyon is a safe place, a nursery for fish and insects, a shelter from predators, a safety net for the small beings of the pond. *Hydrodictyon*—Latin for “the water net.” What a curious thing. A fishnet catches fish, a bug net catches bugs. But a water net catches nothing, save what cannot be held. Mothering is like that, a net of living threads to lovingly encircle what it cannot possibly hold, what will eventually move through it. But

right then my job was reversing succession, turning back time to make these waters swimmable for my daughters. So I wiped my eyes and with all due respect for the lessons of *Hydrodictyon*, I raked it up onto the shore.

When my sister came to visit, her kids, raised in the dry California hills, were smitten with water. They waded after frogs and splashed with abandon while I worked at the algae. My brother-in-law called out from the shade, “Hey, who is the biggest kid here?” I can’t deny it—I’ve never outgrown my desire to play in the mud. But isn’t play the way we get limbered up for the work of the world? My sister defended my pond-raking with the reminder that it was sacred play.

Among our Potawatomi people, women are the Keepers of Water. We carry the sacred water to ceremonies and act on its behalf. “Women have a natural bond with water, because we are both life bearers,” my sister said. “We carry our babies in internal ponds and they come forth into the world on a wave of water. It is our responsibility to safeguard the water for all our relations.” Being a good mother includes the care-taking of water.

On Saturday mornings, Sunday afternoons, year after year, I would go to the solitude of the pond and get to work. I tried grass carp and barley straw, and every new change provoked a new reaction. The job is never over; it simply changes from one task to the next. What I’m looking for, I suppose, is balance, and that is a moving target. Balance is not a passive resting place—it takes work, balancing the giving and the taking, the raking out and the putting in.

Skating in winter, peepers in the spring, summer sunbathing, autumn bonfires; swimmable or not, the pond became like another room in our house. I planted sweetgrass around the edge. The girls and their friends had campfires on the flat meadow of the shore, slumber parties in the tent, summer suppers on the picnic table, and long sun-washed afternoons sunbathing, rising on one elbow when the gust of a heron’s wings stirred the air.

I cannot count the hours that I’ve spent here. Almost without notice

the hours stretched out to years. My dog used to bound up the hill after me and race back and forth along the shore as I worked. As the pond grew clearer, he grew more feeble but would always go with me, to sleep in the sun and drink at the edge. We buried him nearby. The pond built my muscles, wove my baskets, mulched my garden, made my tea, and trellised my morning glories. Our lives became entwined in ways both material and spiritual. It's been a balanced exchange: I worked on the pond and the pond worked on me, and together we made a good home.

One spring Saturday, while I was raking algae, there was a rally downtown in support of the cleanup of Onondaga Lake, on whose shore our city stands. The lake is held sacred by the Onondaga Nation, the people who have fished and gathered on its shore for millennia. It was here that the great Haudenosaunee (Iroquois) Confederacy was formed.

Today, Onondaga Lake has the dubious reputation of being one of the most polluted lakes in the country. The problem at Onondaga Lake is not too much life, but too little. As I dredge up another heavy rakeful of slime, I feel also the weight of responsibility. In one short life where does responsibility lie? I spend countless hours improving the water quality of my half-acre pond. I stand here raking algae so that my kids can swim in clear water, while standing silent on the cleanup of Onondaga, where no one can swim.

Being a good mother means teaching your children to care for the world, and so I've shown the girls how to grow a garden, how to prune an apple tree. The apple tree leans out over the water and makes for a shadowy arbor. In spring a drift of pink and white blossoms send plumes of fragrance wafting down the hill and a rain of petals on the water. For years now I've watched her seasons, from frothy pink blossoms, to gently swelling ovaries as the petals fall away, to sour green marbles of adolescent fruit, to the ripe golden apples of September. That tree has been a good mother. Most years she nurtures a full crop of apples, gathering the energy of the world into herself and passing it on. She sends her young out into the world well provisioned for the journey, packaged in sweetness to share with the world.

My girls, too, have grown up strong and beautiful here, rooted like the willows and flying off like their windblown seeds. And now, after twelve years, the pond is nearly swimmable, if you don't mind the weeds that tickle your legs. My older daughter left for college long before the pond was clean. I recruited my younger daughter to help me carry buckets of pea gravel to pour ourselves a beach. Having become so intimate with muck and tadpoles, I don't mind the occasional green strand that wraps around my arm, but the beach makes a small ramp that lets me wade in and plunge into the deep clear pool at the center without raising a cloud. On a hot day it feels wonderful to submerge in the icy spring water and watch the pollywogs flee. Emerging with a shiver, I have to pluck bits of algae from my wet skin. The girls will take a quick dip to please me, but, in truth, I've not succeeded in turning back time.

It is Labor Day now, the last day of summer vacation. A day to savor the mellow sunshine. This summer is my last with a child at home. Yellow apples plop into the water from an overhanging tree. I am mesmerized by the yellow apples on the dark surface of the pond, globes of light dancing and turning. The breeze off the hill sets the water in motion. In a circular current from west to east and back again, the wind is stirring the pond, so gently you wouldn't see it but for the fruit. The apples ride the current, a procession of yellow rafts following each other along the shoreline. They move quickly from under the apple tree and follow the curve beneath the elms. As the wind carries them away, more fall from the tree so that the whole pond surface is stenciled with moving arcs of yellow, like a procession of yellow candles against a dark night. They spiral around and around in an ever widening gyre.

Paula Gunn Allen, in her book *Grandmothers of the Light*, writes of the changing roles of women as they spiral through the phases of life, like the changing face of the moon. We begin our lives, she says, walking the Way of the Daughter. This is the time for learning, for gathering experiences in the shelter of our parents. We move next to

self-reliance, when the necessary task of the age is to learn who you are in the world. The path brings us next to the Way of the Mother. This, Gunn relates, is a time when “her spiritual knowledge and values are all called into service of her children.” Life unfolds in a growing spiral, as children begin their own paths and mothers, rich with knowledge and experience, have a new task set before them. Allen tells us that our strengths turn now to a circle wider than our own children, to the well-being of the community. The net stretches larger and larger. The circle bends round again and grandmothers walk the Way of the Teacher, becoming models for younger women to follow. And in the fullness of age, Allen reminds us, our work is not yet done. The spiral widens farther and farther, so that the sphere of a wise woman is beyond herself, beyond her family, beyond the human community, embracing the planet, mothering the earth.

So it is my grandchildren who will swim in this pond, and others whom the years will bring. The circle of care grows larger and caregiving for my little pond spills over to caregiving for other waters. The outlet from my pond runs downhill to my good neighbor's pond. What I do here matters. Everybody lives downstream. My pond drains to the brook, to the creek, to a great and needful lake. The water net connects us all. I have shed tears into that flow when I thought that motherhood would end. But the pond has shown me that being a good mother doesn't end with creating a home where just my children can flourish. A good mother grows into a richly eutrophic old woman, knowing that her work doesn't end until she creates a home where all of life's beings can flourish. There are grandchildren to nurture, and frog children, nestlings, goslings, seedlings, and spores, and I still want to be a good mother.

THE CONSOLATION OF WATER LILIES

Before I knew it, and long before the pond was ready for swimming, they were gone. My daughter Linden chose to leave the little pond and put her feet in the ocean at a redwood college far from home. I went to visit her that first semester and we spent a lazy Sunday afternoon admiring the rocks of the agate beach at Patrick's Point.

Walking the shore, I spotted a smooth green pebble threaded with carnelian, just like one I'd passed by a few steps earlier. I walked back, searching the strand until I found it again. I reunited the two pebbles, letting them lie together, shining wet in the sun until the tide came back and pulled them apart, rolling their edges smoother and their bodies smaller. The whole beach was like that for me, a gallery of beautiful pebbles divided from each other and from the shore. Linden's way on the beach was different. She too was rearranging, but her method was to place gray with black basalt and pink beside a spruce green oval. Her eye was finding new pairings; mine was searching out the old.

I had known it would happen from the first time I held her—from that moment on, all her growing would be away from me. It is the fundamental unfairness of parenthood that if we do our jobs well, the deepest bond we are given will walk out the door with a wave over the shoulder. We get good training along the way. We learn to say "Have a great time, sweetie" while we are longing to pull them back to safety. And against all the evolutionary imperatives of protecting our gene pool, we give them car keys. And freedom. It's our job. And I wanted to be a good mother.

I was happy for her, of course, poised at the beginning of a new adventure, but I was sad for myself, enduring the agony of missing her. My friends who had already weathered this passage counseled me to remember the parts of having a house full of children that I wouldn't miss a bit. I would be glad to retire from the worried nights when the roads are snowy, waiting for the sound of tires in the driveway exactly one minute before curfew. The half-done chores and the mysteriously emptying refrigerator.

There were days when I'd get up in the morning and the animals had beaten me to the kitchen. The calico cat yelled from her perch: *Feed me!* The longhair stood by his bowl silently with an accusing stare. The dog threw herself against my legs with happiness and looked expectant. *Feed me!* And I did. I dropped handfuls of oatmeal and cranberries into one pot and stirred hot chocolate in another. The girls came downstairs sleepy-eyed and needing that homework paper from last night. *Feed me*, they said. And I did. I tipped the scraps into the compost bucket so when the next summer's tomato seedlings say *feed me*, I can. And when I kiss the girls good-bye at the door, the horses whicker at the fence for their bucket of grain and the chickadees call from their empty seed tray: *Feed me me me. Feed me me me.* The fern on the windowsill droops its fronds in silent request. When I put the key in the ignition of the car it starts to ping: *fill me*. Which I do. I listen to public radio all the way to school and thank goodness it's not pledge week.

I remember my babies at the breast, the *first* feeding, the long deep suck that drew up from my innermost well, which was filled and filled again, by the look that passed between us, the reciprocity of mother and child. I suppose I should welcome the freedom from all that feeding and worrying, but I'll miss it. Maybe not the laundry, but the immediacy of those looks, the presence of our reciprocal love is hard to say good-bye to.

I understood that part of my sadness at Linden's departure was because I did not know who I would be when I was no longer known as "Linden's Mother." But I had a bit of a reprieve from that crisis, as I am also justly famous for being "Larkin's Mother." But this, too, would pass.

Before my younger daughter, Larkin, left, she and I had a last camp-fire up at the pond and watched the stars come out. "Thank you," she whispered, "for all of this." The next morning she had the car all packed with dorm furnishings and school supplies. The quilt that I made for her before she was born showed through one of the big plastic tubs of essentials. When everything she needed was stuffed in back, then she helped me load mine on the roof.

After we'd unloaded and decorated the dorm room and went out to lunch as if nothing was happening, I knew it was time for my exit. My work was done and hers was beginning.

I saw girls dismiss their parents with a waggle of fingers, but Larkin walked me out to the dorm parking lot where the herds of minivans were still disgorging their cargos. Under the gaze of deliberately cheerful dads and strained-looking moms, we hugged again and shed some smiley tears that we both thought had already been used up. As I opened the car door, she started to walk away and called out loudly, "Mom, if you break down in uncontrollable sobs on the highway, please pull over!" The entire parking lot erupted in laughter and then we were all released.

I did not need Kleenex or the breakdown lane. After all, I wasn't going home. I could manage leaving her at college, but I did not want to go home to an empty house. Even the horses were gone and the old family dog had died that spring. There would be no welcoming committee.

I had planned for this with my special grief-containment system strapped on top of my car. Spending every weekend at track meets or hosting slumber parties, I rarely found time to go paddling alone. Now I was going to celebrate my freedom rather than mourn my loss. You hear about those shiny, red midlife crisis Corvettes? Well, mine was strapped on top of the car. I drove down the road to Labrador Pond and slipped my new red kayak into the water.

Just remembering the sound of the first bow wave brings back the whole of the day. Late summer afternoon, golden sun and lapis sky between the hills that fold around the pond. Red-winged blackbirds cackling in the cattails. Not a breath of wind disturbed the glassy pond.

Open water sparkled ahead, but first I had to traverse the marshy edges, beds of pickerelweed and water lilies so thick they covered the water. The long petioles of the spatterdock lilies, stretching six feet from the mucky bottom to the surface, tangled around my paddle as if they wanted to keep me from moving forward. Pulling away the weeds that stuck to my hull, I could see inside their broken stalks. They were packed with spongy white cells filled with air, like a pith of Styrofoam, that botanists call *aerenchyma*. These air cells are unique to floating water plants and give the leaves buoyancy, like a built-in life jacket. This characteristic makes them very hard to paddle through but they serve a larger purpose.

Pond lily leaves get their light and air at the surface, but are attached at the bottom of the lake to a living rhizome as thick as your wrist and as long as your arm. The rhizome inhabits the anaerobic depths of the pond, but without oxygen it will perish. So the *aerenchyma* forms a convoluted chain of air-filled cells, a conduit between the surface and the depths so that oxygen can slowly diffuse to the buried rhizome. If I pushed the leaves aside I could see them resting below.

Mired in the weeds, I rested for a bit surrounded by water shield, fragrant water lily, rushes, wild calla, and the eccentric flowers known variously as yellow pond lily, bullhead lily, *Nuphar luteum*, spatterdock, and brandybottle. That last name, rarely heard, is perhaps most apt, as the yellow flowers sticking up from the dark water emit a sweet alcoholic scent. It made me wish I had brought a bottle of wine.

Once the showy brandybottle flowers have accomplished their goal of attracting pollinators, they bend below the surface for several weeks, suddenly reclusive while their ovaries swell. When the seeds are mature, the stalks straighten again and lift up above the water the fruit—a curiously flask-shaped pod with a brightly colored lid that looks like its namesake, a miniature brandy cask about the size of a shot glass. I've never witnessed it myself, but I'm told that the seeds pop dramatically from the pod onto the surface, earning one of their other names, spatterdock. All around me there were lilies in all stages of rising and sinking and reemerging, a waterscape of change that is

hard to move through, but I bent to the task, pushing my red boat through the green.

I paddled hard and strong out to the deep water, pulling against the weight of the restraining vegetation, eventually breaking free. When I had exhausted my shoulders so they were as empty as my heart, I rested on the water, closed my eyes, and let the sadness come, adrift.

Maybe a little breeze came up, maybe a hidden current, or the earth tilting on its axis to slosh the pond, but whatever the invisible hand, my little boat began to rock gently, like a cradle on the water. Held by the hills and rocked by the water, the hand of the breeze against my cheek, I gave myself over to the comfort that came, unbidden.

I don't know how long I floated, but my little red boat drifted the length of the lake. Rustling whispers around my hull drew me from reverie and the first thing I saw upon opening my eyes were polished green leaves of water lilies and spatterdock smiling up at me again, rooted in darkness and floating in the light. I found myself surrounded by hearts on the water, luminous green hearts. The lilies seemed to pulse with light, green hearts beating with my own. There were young heart leaves below the water on their way up and old leaves on the surface, some with edges tattered by a summer of wind and waves and, no doubt, kayak paddles.

Scientists used to think that the movement of oxygen from the surface leaves of lilies to the rhizome was merely the slow process of diffusion, an inefficient drift of molecules from a region of high concentration in the air to low concentration under water. But new inquiries revealed a flow we could have known by intuition if we had remembered the teachings of plants.

The new leaves take up oxygen into the tightly packed air spaces of their young, developing tissues, whose density creates a pressure gradient. The older leaves, with looser air spaces created by the tatters and tears that open the leaf, create a low-pressure region where oxygen can be released into the atmosphere. This gradient exerts a pull on the air taken in by the young leaf. Since they are connected

by air-filled capillary networks, the oxygen moves by mass flow from the young leaves to the old, passing through and oxygenating the rhizome in the process. The young and the old are linked in one long breath, an inhalation that calls for reciprocal exhalation, nourishing the common root from which they both arose. New leaf to old, old to new, mother to daughter—mutuality endures. I am consoled by the lesson of lilies.

I paddled more easily back to the shore. Loading the kayak onto the car in the fading light, I was doused with the leftover pond water draining onto my head. I smiled at the illusion of my grief-containment system: there is no such thing. We spill over into the world and the world spills over into us.

The earth, that first among good mothers, gives us the gift that we cannot provide ourselves. I hadn't realized that I had come to the lake and said *feed me*, but my empty heart was fed. I had a good mother. She gives what we need without being asked. I wonder if she gets tired, old Mother Earth. Or if she too is fed by the giving. "Thanks," I whispered, "for all of this."

It was nearly dark when I got home, but my plan had included leaving the porch light on because a dark house would have been one assault too many. I carried my life jacket into the porch and got out my house keys before I noticed a pile of presents, all beautifully wrapped in brightly colored tissue paper, as if a piñata had burst over my door. A bottle of wine with a single glass on the doorsill. There was a going-away party on the porch and Larkin had missed it. "She's one lucky girl," I thought, "showered with love."

I looked through the gifts for tags or a card, but there was nothing to show who had made the late delivery. The wrapping was just tissue paper so I hunted for a clue. I smoothed the purple paper tight on one gift to read the label underneath. It was a jar of Vicks VapoRub! A little note fell from the twisted tissue paper: "Take comfort." I recognized the handwriting immediately as my cousin's, dear enough to be my sister, who lives hours away. My fairy godmother left eighteen notes and

presents, one for every year of mothering Larkin. A compass: “To find your new path.” A packet of smoked salmon: “Because they always come home.” Pens: “Celebrate having time to write.”

We are showered every day with gifts, but they are not meant for us to keep. Their life is in their movement, the inhale and the exhale of our shared breath. Our work and our joy is to pass along the gift and to trust that what we put out into the universe will always come back.

ALLEGIANCE TO GRATITUDE

There was a time, not so long ago, when my morning ritual was to rise before dawn and start the oatmeal and coffee before waking the girls. Then I would get them up to feed the horses before school. That done, I would pack lunches, find lost papers, and kiss pink cheeks as the school bus chugged up the hill, all before filling bowls for the cats and dog, finding something presentable to wear, and previewing my morning lecture as I drove to school. *Reflection* was not a word frequently on my mind those days.

But on Thursdays, I didn't have a morning class and could linger a little, so I would walk the pasture to the top of the hill to start the day properly, with birdsong and shoes soaked in dew and the clouds still pink with sunrise over the barn, a down payment on a debt of gratitude. One Thursday I was distracted from the robins and new leaves by a call I received from my sixth-grade daughter's teacher the night before. Apparently, my daughter had begun refusing to stand with the class for the Pledge of Allegiance. The teacher assured me she wasn't being disruptive, really, or misbehaving, but just sat quietly in her seat and wouldn't join in. After a couple of days other students began following suit, so the teacher was calling "just because I thought you'd like to know."

I remember how that ritual used to begin my day, too, from kindergarten through high school. Like the tap of the conductor's baton, it gathered our attention from the hubbub of the school bus and the jostling hallway. We would be shuffling our chairs and putting lunch boxes away in the cubbies when the loudspeaker grabbed us by the collar.

We stood beside our desks facing the flag that hung on a stick at the corner of the blackboard, as ubiquitous as the smell of floor wax and school paste.

Hand over heart, we recited the Pledge of Allegiance. The pledge was a puzzlement to me, as I'm sure it is to most students. I had no earthly idea what a republic even was, and was none too sure about God, either. And you didn't have to be an eight-year-old Indian to know that "liberty and justice for all" was a questionable premise.

But during school assemblies, when three hundred voices all joined together, all those voices, in measured cadence, from the gray-haired school nurse's to the kindergarteners', made me feel part of something. It was as if for a moment our minds were one. I could imagine then that if we all spoke for that elusive justice, it might be within our reach.

From where I stand today, though, the idea of asking school-children to pledge loyalty to a political system seems exceedingly curious. Especially since we know full well that the practice of recitation will largely be abandoned in adulthood, when the age of reason has presumably been attained. Apparently my daughter had reached that age and I was not about to interfere. "Mom, I'm not going to stand there and lie," she explained. "And it's not exactly liberty if they force you to say it, is it?"

She knew different morning rituals, her grandfather's pouring of coffee on the ground and the one I carried out on the hill above our house, and that was enough for me. The sunrise ceremony is our Potawatomi way of sending gratitude into the world, to recognize all that we are given and to offer our choicest thanks in return. Many Native peoples across the world, despite myriad cultural differences, have this in common—we are rooted in cultures of gratitude.

Our old farm is within the ancestral homelands of the Onondaga Nation and their reserve lies a few ridges to the west of my hill-top. There, just like on my side of the ridge, school buses discharge a herd of kids who run even after the bus monitors bark "Walk!" But at Onondaga, the flag flying outside the entrance is purple and white, depicting the Hiawatha wampum belt, the symbol of the

Haudenosaunee Confederacy. With bright backpacks too big for their little shoulders, the kids stream in through doors painted the traditional Haudenosaunee purple, under the words *Nya wenhah Ska: nonh*, a greeting of health and peace. Black-haired children run circles around the atrium, through sun shafts, over clan symbols etched on the slate floor.

Here the school week begins and ends not with the Pledge of Allegiance, but with the Thanksgiving Address, a river of words as old as the people themselves, known more accurately in the Onondaga language as the Words That Come Before All Else. This ancient order of protocol sets gratitude as the highest priority. The gratitude is directed straight to the ones who share their gifts with the world.

All the classes stand together in the atrium, and one grade each week has responsibility for the oratory. Together, in a language older than English, they begin the recitation. It is said that the people were instructed to stand and offer these words whenever they gathered, no matter how many or how few, before anything else was done. In this ritual, their teachers remind them that every day, “beginning with where our feet first touch the earth, we send greetings and thanks to all members of the natural world.”

Today it is the third grade’s turn. There are only eleven of them and they do their best to start together, giggling a little, and nudging the ones who just stare at the floor. Their little faces are screwed up with concentration and they glance at their teacher for prompts when they stumble on the words. In their own language they say the words they’ve heard nearly every day of their lives.

*Today we have gathered and when we look upon the faces around us we see that the cycles of life continue. We have been given the duty to live in balance and harmony with each other and all living things. So now let us bring our minds together as one as we give greetings and thanks to each other as People. Now our minds are one.**

There is a pause and the kids murmur their assent.

* The actual wording of the Thanksgiving Address varies with the speaker. This text is the widely publicised version of John Stokes and Kanawahientun, 1993.

We are thankful to our Mother the Earth, for she gives us everything that we need for life. She supports our feet as we walk about upon her. It gives us joy that she still continues to care for us, just as she has from the beginning of time. To our Mother, we send thanksgiving, love, and respect. Now our minds are one.

The kids sit remarkably still, listening. You can tell they've been raised in the longhouse.

The Pledge has no place here. Onondaga is sovereign territory, surrounded on every side by the *Republicforwhichitstands*, but outside the jurisdiction of the United States. Starting the day with the Thanksgiving Address is a statement of identity and an exercise of sovereignty, both political and cultural. And so much more.

The Address is sometimes mistakenly viewed as a prayer, but the children's heads are not bowed. The elders at Onondaga teach otherwise, that the Address is far more than a pledge, a prayer, or a poem alone.

Two little girls step forward with arms linked and take up the words again:

We give thanks to all of the waters of the world for quenching our thirst, for providing strength and nurturing life for all beings. We know its power in many forms—waterfalls and rain, mists and streams, rivers and oceans, snow and ice. We are grateful that the waters are still here and meeting their responsibility to the rest of Creation. Can we agree that water is important to our lives and bring our minds together as one to send greetings and thanks to the Water? Now our minds are one.

I'm told that the Thanksgiving Address is at heart an invocation of gratitude, but it is also a material, scientific inventory of the natural world. Another name for the oration is Greetings and Thanks to the Natural World. As it goes forward, each element of the ecosystem is named in its turn, along with its function. It is a lesson in Native science.

We turn our thoughts to all of the Fish life in the water. They were instructed to cleanse and purify the water. They also give

themselves to us as food. We are grateful that they continue to do their duties and we send to the Fish our greetings and our thanks. Now our minds are one.

Now we turn toward the vast fields of Plant life. As far as the eye can see, the Plants grow, working many wonders. They sustain many life forms. With our minds gathered together, we give thanks and look forward to seeing Plant life for many generations to come. Now our minds are one.

When we look about us, we see that the berries are still here, providing us with delicious foods. The leader of the berries is the strawberry, the first to ripen in the spring. Can we agree that we are grateful that the berries are with us in the world and send our thanksgiving, love, and respect to the berries? Now our minds are one.

I wonder if there are kids here who, like my daughter, rebel, who refuse to stand and say thank you to the earth. It seems hard to argue with gratitude for berries.

With one mind, we honor and thank all the Food Plants we harvest from the garden, especially the Three Sisters who feed the people with such abundance. Since the beginning of time, the grains, vegetables, beans, and fruit have helped the people survive. Many other living things draw strength from them as well. We gather together in our minds all the plant foods and send them a greeting and thanks. Now our minds are one.

The kids take note of each addition and nod in agreement. Especially for food. A little boy in a Red Hawks lacrosse shirt steps forward to speak:

Now we turn to the Medicine Herbs of the world. From the beginning they were instructed to take away sickness. They are always waiting and ready to heal us. We are so happy that there are still among us those special few who remember how to use the plants for healing. With one mind, we send thanksgiving, love,

and respect to the Medicines and the keepers of the Medicines. Now our minds are one.

Standing around us we see all the Trees. The Earth has many families of Trees who each have their own instructions and uses. Some provide shelter and shade, others fruit and beauty and many useful gifts. The Maple is the leader of the trees, to recognize its gift of sugar when the People need it most. Many peoples of the world recognize a Tree as a symbol of peace and strength. With one mind we greet and thank the Tree life. Now our minds are one.

The Address is, by its very nature of greetings to all who sustain us, *long*. But it can be done in abbreviated form or in long and loving detail. At the school, it is tailored to the language skills of the children speaking it.

Part of its power surely rests in the length of time it takes to send greetings and thanks to so many. The listeners reciprocate the gift of the speaker's words with their attention, and by putting their minds into the place where gathered minds meet. You could be passive and just let the words and the time flow by, but each call asks for the response: "Now our minds are one." You have to concentrate; you have to give yourself to the listening. It takes effort, especially in a time when we are accustomed to sound bites and immediate gratification.

When the long version is done at joint meetings with non-Native business or government officials, they often get a little fidgety—especially the lawyers. They want to get on with it, their eyes darting around the room, trying *so hard* not to look at their watches. My own students profess to cherish the opportunity to share this experience of the Thanksgiving Address, and yet it never fails that one or a few comment that it goes on too long. "Poor you," I sympathize. "What a pity that we have so much to be thankful for."

We gather our minds together to send our greetings and thanks to all the beautiful animal life of the world, who walk about with us. They have many things to teach us as people. We are grateful

that they continue to share their lives with us and hope that it will always be so. Let us put our minds together as one and send our thanks to the Animals. Now our minds are one.

Imagine raising children in a culture in which gratitude is the first priority. Freida Jacques works at the Onondaga Nation School. She is a clan mother, the school-community liaison, and a generous teacher. She explains to me that the Thanksgiving Address embodies the Onondaga relationship with the world. Each part of Creation is thanked in turn for fulfilling its Creator-given duty to the others. "It reminds you every day that you have enough," she says. "More than enough. Everything needed to sustain life is already here. When we do this, every day, it leads us to an outlook of contentment and respect for all of Creation."

You can't listen to the Thanksgiving Address without feeling wealthy. And, while expressing gratitude seems innocent enough, it is a revolutionary idea. In a consumer society, contentment is a radical proposition. Recognizing abundance rather than scarcity undermines an economy that thrives by creating unmet desires. Gratitude cultivates an ethic of fullness, but the economy needs emptiness. The Thanksgiving Address reminds you that you already have everything you need. Gratitude doesn't send you out shopping to find satisfaction; it comes as a gift rather than a commodity, subverting the foundation of the whole economy. That's good medicine for land and people alike.

We put our minds together as one and thank all the birds who move and fly about over our heads. The Creator gave them the gift of beautiful songs. Each morning they greet the day and with their songs remind us to enjoy and appreciate life. The Eagle was chosen to be their leader and to watch over the world. To all the Birds, from the smallest to the largest, we send our joyful greetings and thanks. Now our minds are one.

The oratory is more than an economic model; it's a civics lesson, too. Freida emphasizes that hearing the Thanksgiving Address every day lifts up models of leadership for the young people: the strawberry

as leader of the berries, the eagle as leader of the birds. “It reminds them that much is expected of them eventually. It says this is what it means to be a good leader, to have vision, and to be generous, to sacrifice on behalf of the people. Like the maple, leaders are the first to offer their gifts.” It reminds the whole community that leadership is rooted not in power and authority, but in service and wisdom.

We are all thankful for the powers we know as the Four Winds. We hear their voices in the moving air as they refresh us and purify the air we breathe. They help to bring the change of seasons. From the four directions they come, bringing us messages and giving us strength. With one mind we send our greetings and thanks to the Four Winds. Now our minds are one.

As Freida says, “The Thanksgiving Address is a reminder we cannot hear too often, that we human beings are not in charge of the world, but are subject to the same forces as all of the rest of life.”

For me, the cumulative impact of the Pledge of Allegiance, from my time as a schoolgirl to my adulthood, was the cultivation of cynicism and a sense of the nation’s hypocrisy—not the pride it was meant to instill. As I grew to understand the gifts of the earth, I couldn’t understand how “love of country” could omit recognition of the actual country itself. The only promise it requires is to a flag. What of the promises to each other and to the land?

What would it be like to be raised on gratitude, to speak to the natural world as a member of the democracy of species, to raise a pledge of *interdependence*? No declarations of political loyalty are required, just a response to a repeated question: “Can we agree to be grateful for all that is given?” In the Thanksgiving Address, I hear respect toward all our nonhuman relatives, not one political entity, but to all of life. What happens to nationalism, to political boundaries, when allegiance lies with winds and waters that know no boundaries, that cannot be bought or sold?

Now we turn to the west where our grandfathers the Thunder Beings live. With lightning and thundering voices they bring with

them the water that renews life. We bring our minds together as one to send greetings and thanks to our Grandfathers, the Thunderers.

We now send greetings and thanks to our eldest brother the Sun. Each day without fail he travels the sky from east to west, bringing the light of a new day. He is the source of all the fires of life. With one mind, we send greetings and thanks to our Brother, the Sun. Now our minds are one.

The Haudenosaunee have been recognized for centuries as masters of negotiation, for the political prowess by which they've survived against all odds. The Thanksgiving Address serves the people in myriad ways, including diplomacy. Most everyone knows the tension that squeezes your jaw before a difficult conversation or a meeting that is bound to be contentious. You straighten your pile of papers more than once while the arguments you have prepared stand at attention like soldiers in your throat, ready to be deployed. But then the Words That Come Before All Else begin to flow, and you start to answer. Yes, of course we can agree that we are grateful for Mother Earth. Yes, the same sun shines on each and every one of us. Yes, we are united in our respect for the trees. By the time we greet Grandmother Moon, the harsh faces have softened a bit in the gentle light of remembrance. Piece by piece, the cadence begins to eddy around the boulder of disagreement and erode the edges of the barriers between us. Yes, we can all agree that the waters are still here. Yes, we can unite our minds in gratitude for the winds. Not surprisingly, Haudenosaunee decision-making proceeds from consensus, not by a vote of the majority. A decision is made only "when our minds are one." Those words are a brilliant political preamble to negotiation, strong medicine for soothing partisan fervor. Imagine if our government meetings began with the Thanksgiving Address. What if our leaders first found common ground before fighting over their differences?

We put our minds together and give thanks to our oldest Grandmother, the Moon, who lights the nighttime sky. She is the leader of women all over the world and she governs the movement

of the ocean tides. By her changing face we measure time and it is the Moon who watches over the arrival of children here on Earth. Let us gather our thanks for Grandmother Moon together in a pile, layer upon layer of gratitude, and then joyfully fling that pile of thanks high into the night sky that she will know. With one mind, we send greetings and thanks to our Grandmother, the Moon.

We give thanks to the Stars who are spread across the sky like jewelry. We see them at night, helping the Moon to light the darkness and bringing dew to the gardens and growing things. When we travel at night, they guide us home. With our minds gathered as one, we send greetings and thanks to all the Stars. Now our minds are one.

Thanksgiving also reminds us of how the world was meant to be in its original condition. We can compare the roll call of gifts bestowed on us with their current status. Are all the pieces of the ecosystem still here and doing their duty? Is the water still supporting life? Are all those birds still healthy? When we can no longer see the stars because of light pollution, the words of Thanksgiving should awaken us to our loss and spur us to restorative action. Like the stars themselves, the words can guide us back home.

We gather our minds to greet and thank the enlightened Teachers who have come to help throughout the ages. When we forget how to live in harmony, they remind us of the way we were instructed to live as people. With one mind, we send greetings and thanks to these caring Teachers. Now our minds are one.

While there is a clear structure and progression to the oratory, it is usually not recited verbatim or exactly the same by different speakers. Some renditions are low murmurs, barely discernible. Some are nearly songs. I love to hear elder Tom Porter hold a circle of listeners in the bowl of his hand. He lights up every face and no matter how long the delivery, you wish it was longer. Tommy says, "Let us pile up our thanks like a heap of flowers on a blanket. We will each take

a corner and toss it high into the sky. And so our thanks should be as rich as the gifts of the world that shower down upon us,” and we stand there together, grateful in the rain of blessings.

We now turn our thoughts to the Creator, or Great Spirit, and send greetings and thanks for all the gifts of Creation. Everything we need to live a good life is here on Mother Earth. For all the love that is still around us, we gather our minds together as one and send our choicest words of greetings and thanks to the Creator. Now our minds are one.

The words are simple, but in the art of their joining, they become a statement of sovereignty, a political structure, a Bill of Responsibilities, an educational model, a family tree, and a scientific inventory of ecosystem services. It is a powerful political document, a social contract, a way of being—all in one piece. But first and foremost, it is the credo for a culture of gratitude.

Cultures of gratitude must also be cultures of reciprocity. Each person, human or no, is bound to every other in a reciprocal relationship. Just as all beings have a duty to me, I have a duty to them. If an animal gives its life to feed me, I am in turn bound to support its life. If I receive a stream's gift of pure water, then I am responsible for returning a gift in kind. An integral part of a human's education is to know those duties and how to perform them.

The Thanksgiving Address reminds us that duties and gifts are two sides of the same coin. Eagles were given the gift of far sight, so it is their duty to watch over us. Rain fulfills its duty as it falls, because it was given the gift of sustaining life. What is the duty of humans? If gifts and responsibilities are one, then asking “What is our responsibility?” is the same as asking “What is our gift?” It is said that only humans have the capacity for gratitude. This is among our gifts.

It's such a simple thing, but we all know the power of gratitude to incite a cycle of reciprocity. If my girls run out the door with lunch in hand without a “Thanks, Mama!” I confess I get to feeling a tad miserly with my time and energy. But when I get a hug of appreciation,

I want to stay up late to bake cookies for tomorrow's lunch bag. We know that appreciation begets abundance. Why should it not be so for Mother Earth, who packs us a lunch every single day?

Living as a neighbor to the Haudenosaunee, I have heard the Thanksgiving Address in many forms, spoken by many different voices, and I raise my heart to it like raising my face to the rain. But I am not a Haudenosaunee citizen or scholar—just a respectful neighbor and a listener. Because I feared overstepping my boundaries in sharing what I have been told, I asked permission to write about it and how it has influenced my own thinking. Over and over, I was told that these words are a gift of the Haudenosaunee to the world. When I asked Onondaga Faithkeeper Oren Lyons about it, he gave his signature slightly bemused smile and said, “Of course you should write about it. It's supposed to be shared, otherwise how can it work? We've been waiting five hundred years for people to listen. If they'd understood the Thanksgiving then, we wouldn't be in this mess.”

The Haudenosaunee have published the Address widely and it has now been translated into over forty languages and is heard all around the world. Why not here in this land? I'm trying to imagine how it would be if schools transformed their mornings to include something like the Thanksgiving Address. I mean no disrespect for the white-haired veterans in my town, who stand with hand on heart as the flag goes by, whose eyes fill with tears as they recite the Pledge in raspy voices. I love my country too, and its hopes for freedom and justice. But the boundaries of what I honor are bigger than the republic. Let us pledge reciprocity with the living world. The Thanksgiving Address describes our mutual allegiance as human delegates to the democracy of species. If what we want for our people is patriotism, then let us inspire true love of country by invoking the land herself. If we want to raise good leaders, let us remind our children of the eagle and the maple. If we want to grow good citizens, then let us teach reciprocity. If what we aspire to is justice for all, then let it be justice for all of Creation.

We have now arrived at the place where we end our words. Of all the things we have named, it is not our intention to leave anything out. If something was forgotten, we leave it to each individual to send such greetings and thanks in their own way. And now our minds are one.

Every day, with these words, the people give thanks to the land. In the silence that falls at the end of those words I listen, longing for the day when we can hear the land give thanks for the people in return.

Picking Sweetgrass

Sweetgrass is harvested in midsummer, when the leaves are long and shiny. The blades are taken one by one and dried in the shade to preserve the color. A gift is always left in return.

EPIPHANY IN THE BEANS

It came to me while picking beans, the secret of happiness.

I was hunting among the spiraling vines that envelop my teepees of pole beans, lifting the dark-green leaves to find handfuls of pods, long and green, firm and furred with tender fuzz. I snapped them off where they hung in slender twosomes, bit into one, and tasted nothing but August, distilled into pure, crisp beaniness. This summer abundance is destined for the freezer, to emerge again in deep midwinter when the air tastes only of snow. By the time I finished searching through just one trellis, my basket was full.

To go and empty it in the kitchen, I stepped between heavy squash vines and around tomato plants fallen under the weight of their fruit. They sprawled at the feet of the sunflowers, whose heads bowed with the weight of maturing seeds. Lifting my basket over the row of potatoes, I noticed an open furrow revealing a nest of red skins where the girls left off harvesting that morning. I kicked some soil over them so the sun wouldn't green them up.

They complain about garden chores, as kids are supposed to do, but once they start they get caught up in the softness of the dirt and the smell of the day and it is hours later when they come back into the house. Seeds for this basket of beans were poked into the ground by their fingers back in May. Seeing them plant and harvest makes me feel like a good mother, teaching them how to provide for themselves.

The seeds, though, we did not provide for ourselves. When Skywoman buried her beloved daughter in the earth, the plants that are special gifts to the people sprang from her body. Tobacco grew from her head. From her hair, sweetgrass. Her heart gave us the strawberry. From her breasts grew corn, from her belly the squash, and we see in her hands the long-fingered clusters of beans.

How do I show my girls I love them on a morning in June? I pick them wild strawberries. On a February afternoon we build snowmen and then sit by the fire. In March we make maple syrup. We pick violets in May and go swimming in July. On an August night we lay out blankets and watch meteor showers. In November, that great teacher the woodpile comes into our lives. That's just the beginning. How do we show our children our love? Each in our own way by a shower of gifts and a heavy rain of lessons.

Maybe it was the smell of ripe tomatoes, or the oriole singing, or that certain slant of light on a yellow afternoon and the beans hanging thick around me. It just came to me in a wash of happiness that made me laugh out loud, startling the chickadees who were picking at the sunflowers, raining black and white hulls on the ground. I knew it with a certainty as warm and clear as the September sunshine. The land loves us back. She loves us with beans and tomatoes, with roasting ears and blackberries and birdsongs. By a shower of gifts and a heavy rain of lessons. She provides for us and teaches us to provide for ourselves. That's what good mothers do.

I looked around at the garden and could feel her delight in giving us these beautiful raspberries, squash, basil, potatoes, asparagus, lettuce, kale and beets, broccoli, peppers, brussels sprouts, carrots, dill, onions, leeks, spinach. It reminded me of my little girls' answer to "How much do I love you?" "Thiiiiiiiiis much," with arms stretched wide, they replied. This is really why I made my daughters learn to garden—so they would always have a mother to love them, long after I am gone.

The epiphany in the beans. I spend a lot of time thinking about our relationships with land, how we are given so much and what we might give back. I try to work through the equations of reciprocity and responsibility, the whys and wherefores of building sustainable relationships with

ecosystems. All in my head. But suddenly there was no intellectualizing, no rationalizing, just the pure sensation of baskets full of mother love. The ultimate reciprocity, loving and being loved in return.

Now, the plant scientist who sits at my desk and wears my clothes and sometimes borrows my car—she might cringe to hear me assert that a garden is a way that the land says, “I love you.” Isn’t it supposed to be just a matter of increasing net primary productivity of the artificially selected domesticated genotypes, manipulating environmental conditions through input of labor and materials to enhance yield? Adaptive cultural behaviors that produce a nutritious diet and increase individual fitness are selected for. What’s love got to do with it? If a garden thrives, it loves you? If a garden fails, do you attribute potato blight to a withdrawal of affection? Do unripe peppers signal a rift in the relationship?

I have to explain things to her sometimes. Gardens are simultaneously a material and a spiritual undertaking. That’s hard for scientists, so fully brainwashed by Cartesian dualism, to grasp. “Well, how would you know it’s love and not just good soil?” she asks. “Where’s the evidence? What are the key elements for detecting loving behavior?”

That’s easy. No one would doubt that I love my children, and even a quantitative social psychologist would find no fault with my list of loving behaviors:

- nurturing health and well-being
- protection from harm
- encouraging individual growth and development
- desire to be together
- generous sharing of resources
- working together for a common goal
- celebration of shared values
- interdependence
- sacrifice by one for the other
- creation of beauty

If we observed these behaviors between humans, we would say, “She loves that person.” You might also observe these actions between

a person and a bit of carefully tended ground and say, “She loves that garden.” Why then, seeing this list, would you not make the leap to say that the garden loves her back?

The exchange between plants and people has shaped the evolutionary history of both. Farms, orchards, and vineyards are stocked with species we have domesticated. Our appetite for their fruits leads us to till, prune, irrigate, fertilize, and weed on their behalf. Perhaps they have domesticated us. Wild plants have changed to stand in well-behaved rows and wild humans have changed to settle alongside the fields and care for the plants—a kind of mutual taming.

We are linked in a co-evolutionary circle. The sweeter the peach, the more frequently we disperse its seeds, nurture its young, and protect them from harm. Food plants and people act as selective forces on each other’s evolution—the thriving of one in the best interest of the other. This, to me, sounds a bit like love.

I sat once in a graduate writing workshop on relationships to the land. The students all demonstrated a deep respect and affection for nature. They said that nature was the place where they experienced the greatest sense of belonging and well-being. They professed without reservation that they loved the earth. And then I asked them, “Do you think that the earth loves you back?” No one was willing to answer that. It was as if I had brought a two-headed porcupine into the classroom. Unexpected. Prickly. They backed slowly away. Here was a room full of writers, passionately wallowing in unrequited love of nature.

So I made it hypothetical and asked, “What do you suppose would happen *if* people believed this crazy notion that the earth loved them back?” The floodgates opened. They all wanted to talk at once. We were suddenly off the deep end, heading for world peace and perfect harmony.

One student summed it up: “You wouldn’t harm what gives you love.”

Knowing that you love the earth changes you, activates you to defend and protect and celebrate. But when you feel that the earth loves

you in return, that feeling transforms the relationship from a one-way street into a sacred bond.

My daughter Linden grows one of my favorite gardens in the world. She brings up all kinds of good things to eat from her thin mountain soil, things I can only dream of, like tomatillos and chile. She makes compost and flowers, but the best part isn't the plants. It's that she phones me to chat while she weeds. We water and weed and harvest, visiting happily as we did when she was a girl despite the three thousand miles between us. Linden is immensely busy, and so I ask her why she gardens, given how much time it takes.

She does it for the food and the satisfaction of hard work yielding something so prolific, she says. And it makes her feel at home in a place, to have her hands in the earth. I ask her, "Do you love your garden?" even though I already know the answer. But then I ask, tentatively, "Do you feel that your garden loves you back?" She's quiet for a minute; she's never glib about such things. "I'm certain of it," she says. "My garden takes care of me like my own mama." I can die happy.

I once knew and loved a man who lived most of his life in the city, but when he was dragged off to the ocean or the woods he seemed to enjoy it well enough—as long as he could find an Internet connection. He had lived in a lot of places, so I asked him where he found his greatest sense of place. He didn't understand the expression. I explained that I wanted to know where he felt most nurtured and supported. What is the place that you understand best? That you know best and knows you in return?

He didn't take long to answer. "My car," he said. "In my car. It provides me with everything I need, in just the way I like it. My favorite music. Seat position fully adjustable. Automatic mirrors. Two cup holders. I'm safe. And it always takes me where I want to go." Years later, he tried to kill himself. In his car.

He never grew a relationship with the land, choosing instead the splendid isolation of technology. He was like one of those little withered seeds you find in the bottom of the seed packet, the one who never touched the earth.

I wonder if much that ails our society stems from the fact that we have allowed ourselves to be cut off from that love of, and from, the land. It is medicine for broken land and empty hearts.

Larkin used to complain mightily about weeding. But now when she comes home, she asks if she can go dig potatoes. I see her on her knees, unearthing red skins and Yukon Golds and singing to herself. Larkin is in graduate school now, studying food systems and working with urban gardeners, growing vegetables for the food pantry on land reclaimed from empty lots. At-risk youth do the planting and hoeing and harvesting. The kids are surprised that the food they harvest is free. They've had to pay for everything they've ever gotten before. They greet fresh carrots, straight from the ground, with suspicion at first, until they eat one. She is passing on the gift, and the transformation is profound.

Of course, much of what fills our mouths is taken forcibly from the earth. That form of taking does no honor to the farmer, to the plants, or to the disappearing soil. It's hard to recognize food that is mummified in plastic, bought and sold, as a gift anymore. Everybody knows you can't buy love.

In a garden, food arises from partnership. If I don't pick rocks and pull weeds, I'm not fulfilling my end of the bargain. I can do these things with my handy opposable thumb and capacity to use tools, to shovel manure. But I can no more create a tomato or embroider a trellis in beans than I can turn lead into gold. That is the plants' responsibility and their gift: animating the inanimate. Now *there* is a gift.

People often ask me what one thing I would recommend to restore relationship between land and people. My answer is almost always, "Plant a garden." It's good for the health of the earth and it's good for the health of people. A garden is a nursery for nurturing connection, the soil for cultivation of practical reverence. And its power goes far

beyond the garden gate—once you develop a relationship with a little patch of earth, it becomes a seed itself.

Something essential happens in a vegetable garden. It's a place where if you can't say "I love you" out loud, you can say it in seeds. And the land will reciprocate, in beans.

THE THREE SISTERS

It should be them who tell this story. Corn leaves rustle with a signature sound, a papery conversation with each other and the breeze. On a hot day in July—when the corn can grow six inches in a single day—there is a squeak of internodes expanding, stretching the stem toward the light. Leaves escape their sheaths with a drawn-out creak and sometimes, when all is still, you can hear the sudden pop of ruptured pith when water-filled cells become too large and turgid for the confines of the stem. These are the sounds of being, but they are not the voice.

The beans must make a caressing sound, a tiny hiss as a soft-haired leader twines around the scabrous stem of corn. Surfaces vibrate delicately against each other, tendrils pulse as they cinch around a stem, something only a nearby flea beetle could hear. But this is not the song of beans.

I've lain among ripening pumpkins and heard creaking as the parasol leaves rock back and forth, tethered by their tendrils, wind lifting their edges and easing them down again. A microphone in the hollow of a swelling pumpkin would reveal the pop of seeds expanding and the rush of water filling succulent orange flesh. These are sounds, but not the story. Plants tell their stories not by what they say, but by what they do.

What if you were a teacher but had no voice to speak your knowledge? What if you had no language at all and yet there was something you needed to say? Wouldn't you dance it? Wouldn't you act it out?

Wouldn't your every movement tell the story? In time you would become so eloquent that just to gaze upon you would reveal it all. And so it is with these silent green lives. A sculpture is just a piece of rock with topography hammered out and chiseled in, but that piece of rock can open your heart in a way that makes you different for having seen it. It brings its message without a single word. Not everyone will get it, though; the language of stone is difficult. Rock mumbles. But plants speak in a tongue that every breathing thing can understand. Plants teach in a universal language: food.

Years ago, Awiakta, a Cherokee writer, pressed a small packet into my hand. It was a corn leaf, dry and folded into a pouch, tied with a bit of string. She smiled and warned, "Don't open 'til spring." In May I untie the packet and there is the gift: three seeds. One is a golden triangle, a kernel of corn with a broadly dimpled top that narrows to a hard white tip. The glossy bean is speckled brown, curved and sleek, its inner belly marked with a white eye—the hilum. It slides like a polished stone between my thumb and forefinger, but this is no stone. And there is a pumpkin seed like an oval china dish, its edge crimped shut like a piecrust bulging with filling. I hold in my hand the genius of indigenous agriculture, the Three Sisters. Together these plants—corn, beans, and squash—feed the people, feed the land, and feed our imaginations, telling us how we might live.

For millennia, from Mexico to Montana, women have mounded up the earth and laid these three seeds in the ground, all in the same square foot of soil. When the colonists on the Massachusetts shore first saw indigenous gardens, they inferred that the savages did not know how to farm. To their minds, a garden meant straight rows of single species, not a three-dimensional sprawl of abundance. And yet they ate their fill and asked for more, and more again.

Once planted in the May-moist earth, the corn seed takes on water quickly, its seed coat thin and its starchy contents, the endosperm, drawing water to it. The moisture triggers enzymes under the skin that cleave the starch into sugars, fueling the growth of the corn embryo that is nestled in the point of the seed. Thus corn is the first to emerge

from the ground, a slender white spike that greens within hours of finding the light. A single leaf unfurls, and then another. Corn is all alone at first, while the others are getting ready.

Drinking in soil water, the bean seed swells and bursts its speckled coat and sends a rootling down deep in the ground. Only after the root is secure does the stem bend to the shape of a hook and elbow its way above ground. Beans can take their time in finding the light because they are well provisioned: their first leaves were already packaged in the two halves of the bean seed. This pair of fleshy leaves now breaks the soil surface to join the corn, which is already six inches tall.

Pumpkins and squash take their time—they are the slow sister. It may be weeks before the first stems poke up, still caught in their seed coat until the leaves split its seams and break free. I'm told that our ancestors would put the squash seeds in a deerskin bag with a little water or urine a week before planting to try to hurry them along. But each plant has its own pace and the sequence of their germination, their birth order, is important to their relationship and to the success of the crop.

The corn is the firstborn and grows straight and stiff; it is a stem with a lofty goal. Laddering upward, leaf by long-ribbed leaf, it must grow tall quickly. Making a strong stem is its highest priority at first. It needs to be there for its younger sister, the bean. Beans put out a pair of heart-shaped leaves on just a stub of a stem, then another pair, and another, all low to the ground. The bean focuses on leaf growth while the corn concentrates on height. Just about the time that the corn is knee high, the bean shoot changes its mind, as middle children are wont to do. Instead of making leaves, it extends itself into a long vine, a slender green string with a mission. In this teenage phase, hormones set the shoot tip to wandering, inscribing a circle in the air, a process known as circumnutation. The tip can travel a meter in a day, pirouetting in a loopy circle dance until it finds what it's looking for—a corn stem or some other vertical support. Touch receptors along the vine guide it to wrap itself around the corn in a graceful upward spiral. For now, it holds back on making leaves, giving itself over to embracing the corn,

keeping pace with its height growth. Had the corn not started early, the bean vine would strangle it, but if the timing is right, the corn can easily carry the bean.

Meanwhile, the squash, the late bloomer of the family, is steadily extending herself over the ground, moving away from the corn and beans, setting up broad lobed leaves like a stand of umbrellas waving at the ends of hollow petioles. The leaves and vines are distinctly bristly, giving second thoughts to nibbling caterpillars. As the leaves grow wider, they shelter the soil at the base of the corn and beans, keeping moisture in, and other plants out.

Native people speak of this gardening style as the Three Sisters. There are many stories of how they came to be, but they all share the understanding of these plants as women, sisters. Some stories tell of a long winter when the people were dropping from hunger. Three beautiful women came to their dwellings on a snowy night. One was a tall woman dressed all in yellow, with long flowing hair. The second wore green, and the third was robed in orange. The three came inside to shelter by the fire. Food was scarce but the visiting strangers were fed generously, sharing in the little that the people had left. In gratitude for their generosity, the three sisters revealed their true identities—corn, beans, and squash—and gave themselves to the people in a bundle of seeds so that they might never go hungry again.

At the height of the summer, when the days are long and bright, and the thunderers come to soak the ground, the lessons of reciprocity are written clearly in a Three Sisters garden. Together their stems inscribe what looks to me like a blueprint for the world, a map of balance and harmony. The corn stands eight feet tall; rippling green ribbons of leaf curl away from the stem in every direction to catch the sun. No leaf sits directly over the next, so that each can gather light without shading the others. The bean twines around the corn stalk, weaving itself between the leaves of corn, never interfering with their work. In the spaces where corn leaves are not, buds appear on the vining bean and expand into outstretched leaves and clusters of fragrant flowers. The bean leaves droop and are held close to the stem of the corn. Spread

around the feet of the corn and beans is a carpet of big broad squash leaves that intercept the light that falls among the pillars of corn. Their layered spacing uses the light, a gift from the sun, efficiently, with no waste. The organic symmetry of forms belongs together; the placement of every leaf, the harmony of shapes speak their message. Respect one another, support one another, bring your gift to the world and receive the gifts of others, and there will be enough for all.

By late summer, the beans hang in heavy clusters of smooth green pods, ears of corn angle out from the stalk, fattening in the sunshine, and pumpkins swell at your feet. Acre for acre, a Three Sisters garden yields more food than if you grew each of the sisters alone.

You can tell they are sisters: one twines easily around the other in relaxed embrace while the sweet baby sister lolls at their feet, close, but not too close—cooperating, not competing. Seems to me I've seen this before in human families, in the interplay of sisters. After all, there are three girls in my family. The firstborn girl knows that she is clearly in charge; tall and direct, upright and efficient, she creates the template for everyone else to follow. That's the corn sister. There's not room for more than one corn woman in the same house, so the middle sister is likely to adapt in different ways. This bean girl learns to be flexible, adaptable, to find a way around the dominant structure to get the light that she needs. The sweet baby sister is free to choose a different path, as expectations have already been fulfilled. Well grounded, she has nothing to prove and finds her own way, a way that contributes to the good of the whole.

Without the corn's support, the beans would be an unruly tangle on the ground, vulnerable to bean-hungry predators. It might seem as if she is taking a free ride in this garden, benefiting from the corn's height and the squash's shade, but by the rules of reciprocity none can take more than she gives. The corn takes care of making light available; the squash reduces weeds. What about the beans? To see her gift you have to look underground.

The sisters cooperate above ground with the placement of their leaves, carefully avoiding one another's space. The same is true below

ground. Corn is classified as a monocot, basically an overgrown grass, so its roots are fine and fibrous. With the soil shaken off, they look like a stringy mop head at the end of a cornstalk handle. They don't go very deep at all; instead they make a shallow network, calling first dibs on incoming rain. After they've had their drink, the water descends out of reach of the corn roots. As the water goes deeper, the deep taproots of the bean are poised there to absorb it. The squash finds its share by moving away from the others. Wherever a squash stem touches soil, it can put out a tuft of adventitious roots, collecting water far from the corn and bean roots. They share the soil by the same techniques that they share the light, leaving enough for everyone.

But there is one thing they all need that is always in short supply: nitrogen. That nitrogen should be the factor that limits growth is an ecological paradox: fully 78 percent of the atmosphere is nitrogen gas. The problem is that most plants simply can't use atmospheric nitrogen. They need mineral nitrogen, nitrate or ammonium. The nitrogen in the atmosphere might as well be food locked away in full sight of a starving person. But there are ways to transform that nitrogen, and one of the best ways is named "beans."

Beans are members of the legume family, which has the remarkable ability to take nitrogen from the atmosphere and turn it into usable nutrients. But they don't do it alone. My students often run to me with a handful of roots from a bean they've unearthed, with little white balls clinging to strands of root. "Is this a disease?" they ask. "Is something wrong with these roots?" In fact, I reply, there's something very right.

These glistening nodules house the *Rhizobium* bacteria, the nitrogen fixers. *Rhizobium* can only convert nitrogen under a special set of circumstances. Its catalytic enzymes will not work in the presence of oxygen. Since an average handful of soil is more than 50 percent air space, the *Rhizobium* needs a refuge in order to do its work. Happily, the bean obliges. When a bean root meets a microscopic rod of *Rhizobium* underground, chemical communications are exchanged and a deal is negotiated. The bean will grow an oxygen-free nodule to house the bacterium and, in return, the bacterium shares its

nitrogen with the plant. Together, they create nitrogen fertilizer that enters the soil and fuels the growth of the corn and the squash, too. There are layers upon layers of reciprocity in this garden: between the bean and the bacterium, the bean and the corn, the corn and the squash, and, ultimately, with the people.

It's tempting to imagine that these three are deliberate in working together, and perhaps they are. But the beauty of the partnership is that each plant does what it does in order to increase its own growth. But as it happens, when the individuals flourish, so does the whole.

The way of the Three Sisters reminds me of one of the basic teachings of our people. The most important thing each of us can know is our unique gift and how to use it in the world. Individuality is cherished and nurtured, because, in order for the whole to flourish, each of us has to be strong in who we are and carry our gifts with conviction, so they can be shared with others. Being among the sisters provides a visible manifestation of what a community can become when its members understand and share their gifts. In reciprocity, we fill our spirits as well as our bellies.

For years, I taught General Botany in a lecture hall with slides and diagrams and stories of plants that could not fail to inflame the enthusiasm of eighteen-year-olds for the marvels of photosynthesis. How could they be anything but elated to learn how roots find their way through the soil, sitting on the edge of their seats waiting to hear more about pollen? The sea of blank looks suggested that most of them found this as interesting as, literally, watching grass grow. When I would wax eloquent about the grace with which a bean seedling pushes its way up in the spring, the first row would eagerly nod their heads and raise their hands while the rest of the class slept.

In a fit of frustration, I asked for a show of hands: "How many of you have ever grown anything?" Every hand in the front row went up, and there were a few halfhearted waves from the back from someone whose mother had an African violet that had died a withering death.

Suddenly I understood their boredom. I was teaching from memory, drawing on images of plant lives that I had witnessed over the years. The green images I thought we shared as human beings were not theirs, thanks to the supplanting of gardens by supermarkets. The front-row students had seen these things as well and wanted to know how such everyday miracles were possible. But most of the class had no experience of seeds and soil, had never watched a flower transform itself into an apple. They needed a new teacher.

And so now each fall I begin my class in a garden, where they have the best teachers I know, three beautiful sisters. For a whole September afternoon they sit with the Three Sisters. They measure yield and growth and get to know the anatomy of the plants who feed them. I ask them first to just look. They observe and draw the way the three live in relationship. One of my students is an artist, and the more she looks the more excited she becomes. "Look at the composition," she says. "It's just like our art teacher described the elements of design in studio today. There is unity, balance, color. It's perfect." I look at the sketch in her notebook, and she's seeing it like a painting. Long leaves, round leaves, lobed and smooth, yellow, orange, tan on a matrix of green. "See the way it works? Corn is the vertical element, squash horizontal, and it's all tied together with these curvilinear vines, the beans. Ravishing," she claims with a flourish.

One of the girls is dressed for allure that might work in a dance club, but not on a botany field trip. She has avoided any contact with the dirt so far. To ease her into the work, I suggest that she take the relatively clean task of simply following a squash vine from one end to another and diagramming the flowers. Way out at the young tip of the vine are orange squash blossoms as ruffled and splashy as her skirt. I point out the swollen ovary of the flower after it has been pollinated. Such is the outcome of successful seduction. Mincing carefully in her heels, she follows the vine back toward its source; the older flowers have wilted and a tiny little squash has appeared where the flower's pistil had been. Closer and closer to the plant, the squashes become larger, from a penny-size nub with flower still attached, to the full ripeness of

a ten-inch squash. It's like watching a pregnancy unfold. Together we pick a ripe butternut squash and slice it open so she can see the seeds in the cavity within.

"You mean a squash comes from a flower?" she says incredulously, seeing the progression along the vine. "I love this kind of squash at Thanksgiving."

"Yes," I tell her, "this is the ripened ovary of that first flower."

Her eyes widen in shock. "You mean all these years I've been eating ovaries? Blech—I'll never eat a squash again."

There is an earthy sexuality to a garden, and most of the students get drawn in to the revelation of fruit. I have them carefully open an ear of corn without disturbing the corn silk that plumes from the end. First the coarse outer husks are pulled away, then layer after layer of inner leaves, each thinner than the next until the last layer is exposed, so thin and tightly pressed to the corn that the shape of the kernels show through it. As we draw aside the last layer, the sweet milky scent of corn rises from the exposed ear, rows upon rows of round yellow kernels. We look closely and follow an individual strand of corn silk. Outside the husk it is brown and curly, but inside it is colorless and crisply succulent, as if filled with water. Each little strand of silk connects a different kernel inside the husk to the world outside.

A corncob is an ingenious sort of flower in which the silk is a greatly elongated flower pistil. One end of the silk waves in the breeze to collect pollen, while the other end attaches to the ovary. The silk is the water-filled conduit for sperm released from the pollen grains caught there. The corn sperm swim down the silken tube to the milky-white kernel—the ovary. Only when the corn kernels are so fertilized will they grow plump and yellow. A corncob is the mother of hundreds, as many children as there are kernels, each with potentially a different father. Is it any wonder she is called the Corn Mother?

Beans too grow like babies in the womb. The students are contentedly munching fresh pole beans. I ask them to first open a slender pod, to see what they're eating. Jed slits a pod with his thumbnail and opens it. There they are, bean babies, ten in a row. Each little beanlet is

attached to the pod by a fragile green cord, the funiculus. Just a few millimeters long, it is the analog to the human umbilical cord. Through this cord, the mother plant nourishes her growing offspring. The students crowd around to look. Jed asks, "Does that mean a bean has a belly button?" Everybody laughs, but the answer is right there. Every bean has a little scar from the funiculus, a colored spot on its seed coat, the hilum. Every bean does have a belly button. These plant mothers feed us and leave their children behind as seeds, to feed us again and again.

In August, I like to have a Three Sisters potluck. I spread tablecloths on the tables beneath the maples and stuff bouquets of wildflowers in canning jars on every table. Then my friends start to arrive, each with a dish or a basket. The tables fill up with trays of golden cornbread, three-bean salad, round brown bean cakes, black bean chili, and summer squash casserole. My friend Lee brings a platter of small pumpkins stuffed with cheesy polenta. There's a steaming pot of Three Sisters soup, all green and yellow, with slices of summer squash floating in the broth.

As if there wasn't enough to eat already, our ritual is to go to the garden together, once everyone arrives, and pick some more. The corn ears fill a bushel basket. The kids are delegated to shuck the corn while parents fill a bowl with new green beans and the littlest kids peek under prickly leaves looking for squash blossoms. We carefully spoon a batter of cheese and cornmeal into the orange throat of each flower, close it up, and fry it until it's crisp. They disappear from the plate as fast as we can make them.

The genius of the Three Sisters lies not only in the process by which they grow, but also in the complementarity of the three species on the kitchen table. They taste good together, and the Three Sisters also form a nutritional triad that can sustain a people. Corn, in all its guises, is a superb form of starch. All summer, the corn turns sunshine into carbohydrate, so that all winter, people can have food energy. But a human cannot subsist on corn alone; it is not nutritionally complete.

Just as the bean complements the corn in the garden, it collaborates in the diet as well. By virtue of their nitrogen-fixing capacity, beans are high in protein and fill in the nutritional gaps left by corn. A person can live well on a diet of beans and corn; neither alone would suffice. But neither beans nor corn have the vitamins that squash provide in their carotene-rich flesh. Together, they are once again greater than alone.

After dinner we are too full for dessert. There is a dish of Indian pudding and maple corncakes waiting for us, but we just sit and look out over the valley while the kids run around. The land below us is mostly planted to corn, the long rectangular fields butting right up against the woodlots. In the afternoon light, the rows of corn throw shadows on one another, outlining the contours of the hill. From a distance they look like lines of text on a page, long lines of green writing across the hillside. The truth of our relationship with the soil is written more clearly on the land than in any book. I read across that hill a story about people who value uniformity and the efficiency it yields, a story in which the land is shaped for the convenience of machines and the demands of a market.

In indigenous agriculture, the practice is to modify the plants to fit the land. As a result, there are many varieties of corn domesticated by our ancestors, all adapted to grow in many different places. Modern agriculture, with its big engines and fossil fuels, took the opposite approach: modify the land to fit the plants, which are frighteningly similar clones.

Once you know corn as a sister, it's hard to unknow it. But the long ranks of corn in the conventional fields seem like a different being altogether. The relationships disappear and individuals are lost in anonymity. You can hardly recognize a beloved face lost in a uniformed crowd. These acres are beautiful in their own way, but after the companionship of a Three Sisters garden, I wonder if they're lonely.

There must be millions of corn plants out there, standing shoulder to shoulder, with no beans, no squash, and scarcely a weed in sight. These are my neighbor's fields, and I've seen the many passes with the tractor that produce such a "clean" field. Tank sprayers on the tractor

have delivered applications of fertilizer; you can smell it in the spring as it drifts off the fields. A dose of ammonium nitrate substitutes for the partnership of a bean. And the tractors return with herbicides to suppress weeds in lieu of squash leaves.

There were certainly bugs and weeds back when these valleys were Three Sisters gardens, and yet they flourished without insecticides. Polycultures—fields with many species of plants—are less susceptible to pest outbreaks than monocultures. The diversity of plant forms provides habitats for a wide array of insects. Some, like corn worms and bean beetles and squash borers, are there with the intent of feeding on the crop. But the diversity of plants also creates habitat for insects who eat the crop eaters. Predatory beetles and parasitic wasps coexist with the garden and keep the crop eaters under control. More than people are fed by this garden, but there is enough to go around.

The Three Sisters offer us a new metaphor for an emerging relationship between indigenous knowledge and Western science, both of which are rooted in the earth. I think of the corn as traditional ecological knowledge, the physical and spiritual framework that can guide the curious bean of science, which twines like a double helix. The squash creates the ethical habitat for coexistence and mutual flourishing. I envision a time when the intellectual monoculture of science will be replaced with a polyculture of complementary knowledges. And so all may be fed.

Fran brings out a bowl of whipped cream for the Indian pudding. We spoon up the soft custard, rich with molasses and cornmeal, and watch the light fade on the fields. There's a squash pie, too. By this feast, I want the Three Sisters to know that we've heard their story. Use your gift to take care of each other, work together, and all will be fed, they say.

They've all brought their gifts to this table, but they've not done it alone. They remind us that there is another partner in the symbiosis. She is sitting here at the table and across the valley in the farmhouse, too. She's the one who noticed the ways of each species and imagined how they might live together. Perhaps we should consider this a Four Sisters garden, for the planter is also an essential partner. It is she who

turns up the soil, she who scares away the crows, and she who pushes seeds into the soil. We are the planters, the ones who clear the land, pull the weeds, and pick the bugs; we save the seeds over winter and plant them again next spring. We are midwives to their gifts. We cannot live without them, but it's also true that they cannot live without us. Corn, beans, and squash are fully domesticated; they rely on us to create the conditions under which they can grow. We too are part of the reciprocity. They can't meet their responsibilities unless we meet ours.

Of all the wise teachers who have come into my life, none are more eloquent than these, who wordlessly in leaf and vine embody the knowledge of relationship. Alone, a bean is just a vine, squash an oversize leaf. Only when standing together with corn does a whole emerge which transcends the individual. The gifts of each are more fully expressed when they are nurtured together than alone. In ripe ears and swelling fruit, they counsel us that all gifts are multiplied in relationship. This is how the world keeps going.

WISGAAK GOKPENAGEN: A BLACK ASH BASKET

Doonk, doonk, doonk. Silence. *Doonk, doonk, doonk.*

The back of the ax meets the log to make a hollow music. It drops three times on one spot and then John's eyes shift a fraction down the log, where he strikes again. *Doonk, doonk, doonk.* As he raises the ax above his head, his hands slide apart on the upstroke, then together on the down, shoulders pulling tight under his chambray shirt, his thin braid jumping with every impact. All the way down the log he pounds triplets of crushing blows.

Straddling the end of the log, he works his fingers under a split in the cut end and gives it a tug. Slow and steady, he peels off a strip of wood the width of the ax head in a thick ribbon. He takes up the ax and pounds another few feet. *Doonk, doonk, doonk.* Again he grasps the base of the strip and peels it back along the pounded line, taking the log apart strip by strip. By the time he pounds the last few feet, he has worked off an eight-foot splint of gleaming white wood. He holds it to his nose to breathe in the goodness of new wood and passes it around for us all to see. John coils it into a neat hoop, ties it fast, and hangs it on a nearby tree branch. "Your turn," he says and hands off the ax.

My teacher this warm summer day is John Pigeon, a member of the large, renowned Pigeon family of Potawatomi basket makers. Since that first initiation to pounding a log, I'm grateful to have sat in on black ash basket classes with several generations of the extended family of Pigeons—Steve, Kitt, Ed, Stephanie, Pearl, Angie, and more,

children and grandchildren—with splints in their hands. All gifted basket makers, carriers of culture, and generous teachers. The log is a good teacher, too.

It's harder than it looks, making the ax repeat its pattern evenly down the log. Too much impact in one spot will break the fibers; too little and the strip won't fully break free, leaving a thin spot. Each of us beginners works differently, some with sharp strokes from overhead, some with dull thudding as if we were hammering nails. The sound changes with the pounder: a high ringing note like the call of wild geese, a bark like a startled coyote's, the muffled thumping of a drumming grouse.

When John was a kid the sound of log pounding was heard all through the community. Walking home from school, he could tell who was out working by the sound of their swing. Uncle Chester was a hard, fast *crack, crack, crack*. From across the hedgerow he could hear Grandma Bell's slow *thuds* separated by long pauses while she caught her breath. But now the village grows quieter and quieter as elders walk on and kids seem more interested in video games than in tromping through the swamp. So John Pigeon teaches any who will come, to pass on what he's learned from his elders and the trees.

John is both a master basket maker and a carrier of tradition. Pigeon family baskets can be found in the Smithsonian and other museums and galleries around the world. But they are also available here, at the family's booth at the annual Potawatomi Gathering of Nations. Their table is loaded with colorful baskets, no two alike. There are fancy baskets the size of a bird's nest, gathering baskets, potato baskets, corn-washing baskets. His whole family weaves, and no one at the Gathering wants to go home without a Pigeon basket. I save up each year for one.

Like the rest of the family, John is also a master teacher, committed to sharing what has been passed on by generations who came before. What was given to him, he now gives back to the people. Some basket classes I've taken start with a neat pile of materials, all assembled on a clean table. But John doesn't hold with teaching basket weaving where

the splints come ready made—he teaches basket *making*, beginning with a living tree.

Black Ash (*Fraxinus nigra*) likes to have its feet wet. In floodplain forests and edges of swamps, black ash mingles with red maples, elms, and willows. It is never the most common tree—you only find it in scattered patches—so it can take a long day of tromping over boot-sucking ground to find the right tree. Scanning a wet forest, you can pick out the black ash by its bark. You pass by maples with bark of rigid gray plates, the braided corky ridges of elm, the deeply furrowed willows, and instead seek out the fine pattern of interlocked ridges and warty knobs of black ash. The knobs feel spongy under your fingertips when you give them a squeeze. There are other species of ash growing in the swamp, so it's good to check the leaves overhead as well. All ashes—green, white, blue, pumpkin, and black—have compound leaves borne opposite one another on stout, corky twigs.

And yet it's not enough to simply find black ash; it has to be the right one—a tree ready to be a basket. An ideal basket ash has a straight, clear bole with no branches in the lower trunk. Branches make knots that interrupt the straight grain of the splint. A good tree is about a handbreadth across, the crown full and vigorous, a healthy tree. A tree that has grown directly up toward the sun will be straight and fine grained, while those that have wandered a bit to find the light show twists and turns in the grain. Some basket makers will choose only trees perched on a hummock in the swamp, while others will avoid a black ash growing next to a cedar.

Trees are affected by their sapling days as much as people are by their childhoods. The history of a tree appears in its growth rings, of course. Good years yield a wide ring, poor years a thin one, and the pattern of rings is critical to the process of basket making.

Growth rings are formed by the cycle of the seasons, by the waking and resting of the fragile layer of cells that lies between the bark and the newest wood, the cambium. Peel away the bark and you feel the

cambium's slippery wetness. The cells of the cambium are perpetually embryonic, always dividing to add to the girth of the tree. In the spring, when the buds detect the lengthening of the days and the sap starts to rise, the cambium grows cells made for feast days, big, wide-mouthed tubes to carry the abundant water leafward. These lines of large vessels are what you count to determine a tree's age. They grow quickly and so their walls tend to be thin. Wood scientists call this part of the annual ring springwood or early wood. When spring turns to summer, nutrients and water become scarce and the cambium produces smaller, thicker cells for leaner times. These densely packed cells are called late wood or summerwood. When the days shorten and leaves fall, the cambium settles in for a winter's rest and stops dividing altogether. But as soon as spring is imminent, the cambium once again bursts into action, making large springwood cells. The abrupt transition between the last year's small-celled late wood and the early wood of spring creates the appearance of a line, a growth ring.

John has developed a practiced eye for these things. But sometimes, just to be sure, he'll unsheathe his knife and cut out a wedge for a look at the rings. John prefers a tree in the range of thirty to forty growth rings, each ring as wide as a nickel. When he's found the right one, the harvest begins. Not with a saw, though, but rather with a conversation.

Traditional harvesters recognize the individuality of each tree as a person, a nonhuman forest person. Trees are not taken, but requested. Respectfully, the cutter explains his purpose and the tree is asked permission for harvest. Sometimes the answer is no. It might be a cue in the surroundings—a vireo nest in the branches, or the bark's adamant resistance to the questioning knife—that suggests a tree is not willing, or it might be the ineffable knowing that turns him away. If consent is granted, a prayer is made and tobacco is left as a reciprocating gift. The tree is felled with great care so as not to damage it or others in the fall. Sometimes a cutter will make a bed of spruce boughs to cushion the landing of the tree. When they finish, John and his son hoist the log to their shoulders and begin the long walk home.

John and his extended family make a lot of baskets. His mother

prefers to pound her own log, although he and the boys will often do it when her arthritis is bothering her. They'll weave all year round, but there are certain seasons for the best harvest. It's a good idea to pound a log soon after harvest, while it is still moist, although John says you can bury a log in a trench covered with damp earth to keep it fresh. His favorite times are spring—when “the sap is rising and the energy of the earth is flowing into the tree”—and fall, “when the energy is flowing back to the ground.”

Today, John scales away the spongy bark, which would deflect the power of the ax, and gets to work. When he pulls the edge of the first strip, you can see what's happening: Beating the log crushes the thin-walled cells of the early wood, breaking them down and separating them from the late wood. The log fractures at the dividing line between springwood and summer, so the strip that peels off is the wood between annual rings.

Depending on the individual history of the tree and its pattern of rings, a strip might come off carrying the wood of five years or sometimes just one. Every tree is different, but as the basket makers pound and peel, he is always moving back through time. The tree's life is coming off in his hands, layer by layer. As the hoops of splint grow more numerous, the log itself grows smaller and within hours is a skinny pole. “See,” John shows us, “we've stripped all the way back to the time it was a sapling.” He gestures to the big pile of splint we've accumulated. “Don't ever forget that. It's the whole life of that tree you've got piled up there.”

The long strips of wood vary in thickness, so the next step is splitting the strip into its component layers, further separating the annual rings. Thick splints are needed for a big laundry hamper or a trapper's pack basket. The finest fancy baskets use only a ribbon of less than one year's wood. From the back of his new white pickup, John pulls out his splitters: two pieces of wood joined with a clamp to make what looks like a giant clothespin. He sits on the edge of his chair and holds the splitter

between his knees so its open legs are on the ground and the peaked end rises from his lap. He threads a full eight-foot length of splint up through the clamp and fastens it there with an inch or so protruding. He flicks open his knife and wedges the blade into the cut end of the strip, wiggling it along the growth ring to open a cut. His brown hands grasp either side of the cut and he pulls them apart in a smooth motion, yielding strips as smooth and even as two long blades of grass.

“That’s all there is to it,” he says, but there’s laughter in his eyes as they meet mine. I thread the splint, try to balance the splitter steady between my thighs, and then make the cut that will start the split. I discover quickly that you need to grip the splitter hard between your legs—something I can barely manage. “Yup,” John laughs, “this is an old Indian invention—the thigh master!” By the time I’m through, my splint looks like a chipmunk has been gnawing on the end. John is a patient teacher, but he won’t do it for me. He just smiles, smartly severs my frayed end, and says, “Try it again.” Eventually I get two sides that I can pull, but they’re uneven and my pulling yields only a twelve-inch splinter, thin on one side, thick on the other. John circles among us, offering encouragement. He has learned everyone’s name and picked up something of what each one of us needs. Some he joshes about their weak biceps, others he pats warmly on the shoulder. With the frustrated he sits gently alongside and says, “Don’t try so hard. Be easier on yourself.” For others, he just pulls the strip and gives it to them. He’s as good a judge of people as he is of trees.

“This tree’s a good teacher,” he says. “That’s what we’ve always been taught. The work of being a human is finding balance, and making splints will not let you forget it.”

When you get the hang of it, the splint pulls apart evenly, the inner faces of the splint unexpectedly beautiful: glossy and warm, they catch the light like a ribbon of cream satin. The outer surface is uneven and roughened with splintered ends that leave long “hairs.”

“You need a very sharp knife now,” he says. “I have to use the whetstone every day. And it’s awfully easy to cut yourself.” John hands each of us a “leg,” cut from worn blue jeans, and shows us how to lay the

double thickness of denim over our left thighs. “Deerskin is really the best thing to use,” he says, “if you’ve got some lying around. But blue jeans work fine. Just be careful.” He sits with us individually to demonstrate, for the difference between success and bloodshed is a small degree in the angle of the knife and the pressure of the hand. He lays the strip across his thigh, rough side up, and sets the knife edge against it. With his other hand, he draws the strip out from beneath the knife in a continuous motion like a skate blade skimming over ice. The shavings gather on the knife as the strip pulls by. The result is a polished surface. This too he makes look easy. I’ve seen Kitt Pigeon pull satiny strips as if she were pulling ribbon from a spool, but my knife snags and I end up cutting gouges instead of planing it smooth. The angle of my knife is too sharp and I cut right through, rendering a long pretty strip into a scrap.

“You’re about up to a loaf of bread,” John says, shaking his head when I ruin yet another piece. “That’s what my mother would say when we spoiled splints.” Basket making was and is the livelihood of the Pigeon family. In their grandfather’s time the lake, woods, and gardens gave them most of their food and other provisions, but at times they also needed store goods, and baskets were the cash crop that bought bread, canned peaches, and school shoes. Spoiled splints were like food thrown away. Depending on the size and design, a black ash basket can sell for good money. “People get a little mad when they see the prices,” John says. “People think it’s ‘just’ basket weaving, but 80 percent of the work comes long before you weave. With finding the tree, pounding and pulling, and all, you barely make minimum wage.”

With splints finally prepared, we’re poised for weaving—what we had mistakenly thought was the real work of a basket. But John stops the class, his gentle voice gaining a hard edge. “You’ve missed the most important thing,” he says. “Look around you.” We look—at the forest, at the camp, at each other. “At the *ground!*” he says. In a circle around each novice is a litter of scraps. “Stop and think what you’re holding. That ash tree was growing out there in that swamp for thirty years, putting out leaves, dropping them, putting out more. It got eaten by

deer, hit by a freeze, but it kept working year in and year out, laying down those rings of wood. A splint fallen on the ground is a whole year of that tree's life and you're about to step on it, bend it, grind it into the dirt? That tree honored you with its life. There's no shame in messing up a splint; you're just learning. But whatever you do, you owe that tree respect and should never waste it." And so he guides us as we sort through the debris we've made. Short strips go into a pile for small baskets and decoration. The miscellaneous bits and shavings get tossed into a box to be dried and used for tinder. John keeps to the tradition of the Honorable Harvest: take only what you need and use everything you take.

His words echo what I've often heard from my folks. They grew up during the Depression, with the imperative not to waste, and there were certainly no scraps on the floor then. But "use it up, wear it out, make it do, or do without" is an ethic both economical and ecological. The waste of splints both dishonors the tree and diminishes the household budget.

Just about everything we use is the result of another's life, but that simple reality is rarely acknowledged in our society. The ash curls we make are almost paper thin. They say that the "waste stream" in this country is dominated by paper. Just as much as an ash splint, a sheet of paper is a tree's life, along with the water and energy and toxic by-products that went into making it. And yet we use it as if it were nothing. The short path from mailbox to waste bin tells the story. But what would happen, I wonder, to the mountain of junk mail if we could see in it the trees it once had been? If John was there to remind us of the worthiness of their lives?

In some parts of the range, basket makers began to observe a decline in the numbers of black ash. They worried that overharvesting might be to blame, a decline caused by too much attention for the baskets in the marketplace and too little for their sources in the woods. My graduate student Tom Touchet and I decided to investigate. We began by analyzing the population structure of black ashes around us in New York State, to understand where in the trees' life cycle the difficulty might lie. In every swamp we visited, we counted all the black ash we could find

and wrapped a tape around them to get their size. Tom cored a few in every site to check their ages. In stand after stand, Tom found that there were old trees and seedlings, but hardly any trees in between. There was a big hole in the demographic census. He found plenty of seeds, plenty of young seedlings, but most of the next age class—the saplings, the future of the forest—were dead or missing.

There were only two places where he found an abundance of adolescent trees. One was in gaps in the forest canopy, where disease or a windstorm had brought down a few old trees, letting light through. Curiously enough, he found that where Dutch elm disease had killed off elms, black ash was replacing them in a balance between loss of one species and gain of another. To make the transition from seedling to tree, the young black ash needed an opening. If they remained in full shade they would die.

The other place where saplings were thriving was near communities of basket makers. Where the tradition of black ash basketry was alive and well, so were the trees. We hypothesized that the apparent decline in ash trees might be due not to overharvesting but to *under*harvesting. When communities echoed with *Doonk, doonk, doonk*, there were plenty of basket makers in the woods, creating gaps where the light would reach the seedlings and the young trees could shoot to the canopy and become adults. In places where the basket makers disappeared, or were few, the forest didn't get opened up enough for black ash to flourish.

Black ash and basket makers are partners in a symbiosis between harvesters and harvested: ash relies on people as the people rely on ash. Their fates are linked.

The Pigeons' teaching of this linkage is part of a growing movement to revive traditional basketry, tied to the revitalization of indigenous lands, language, culture, and philosophies. All over Turtle Island, Native peoples are leading a resurgence in traditional knowledge and lifeways that nearly disappeared under the pressures of newcomers. But just as the revival of ash basketry is gaining strength, it is being threatened by yet another invading species.

John sends us off for a break, a cool drink, and a stretch for tired

fingers. “You need a clear mind for the next part,” he says. As we mill about, shaking out the cramps in our necks and hands, John gives us each a U.S. Department of Agriculture pamphlet with a photo of a shiny green beetle on the cover. “If you care about ash trees,” he says, “you’d better pay attention. They’re under attack.”

The emerald ash borer, introduced from China, lays its eggs in tree trunks. After the larvae hatch, they chew up the cambium until they pupate, when the beetle bores its way out of the tree and flies off to find a new nursery. But wherever it lands, it is inevitably fatal for the infested trees. Unfortunately for the people of the Great Lakes region and New England, the beetle’s favorite host is ash. Today there is a quarantine on moving logs and firewood in an effort to contain their spread, but the insect is moving faster than scientists predicted.

“So, be on the lookout,” John says. “We have to protect our trees, that’s our job.” When he and his family are harvesting logs in the fall, they take special care to gather up fallen seeds and spread them around as they move through the wetlands. “It’s like anything else,” he reminds us. “You can’t take something without giving back. This tree takes care of us, so we have to take care of it.”

Already, vast areas of ash in Michigan have died; beloved basket grounds are now boneyards of barkless trees. There is a rupture in the chain of relationship that stretches back through time immemorial. The swamp where the Pigeons have gathered and cared for black ash for generations is now infested. Angie Pigeon writes, “Our trees are all gone. I don’t know if there will be any more baskets.” To most people, an invasive species represents losses in a landscape, the empty spaces to be filled by something else. To those who carry the responsibility of an ancient relationship, the empty niche means empty hands and a hole in the collective heart.

Now, when so many trees have fallen and the tradition passed on by generations is at risk, the Pigeons work to protect both trees and the tradition. They are partnering with forest scientists to resist the insect and to adapt to its aftermath. There are reweavers among us.

John and his family are not alone in their efforts to protect the black

ash. At Akwesasne, a Mohawk reserve that straddles the border between New York State and Canada, black ash has yet more guardians. Over the past three decades, Les Benedict, Richard David, and Mike Bridgen have led an effort to bring traditional ecological knowledge as well as scientific tools to bear in the protection of black ash. They have grown thousands of black ash seedlings to give away to indigenous communities throughout the region. Les even convinced the New York State Tree Nursery to grow them for planting in places ranging from school yards to Superfund sites. Thousands had already been planted in resurgent forests, in resurgent communities, just as the ash borer appeared on our shores.

As the threat wings its way closer to their homelands every fall, Les and his colleagues gather the willing to collect the best seeds they can find, storing seed to keep faith with the future, to replant the forest after the wave of invasion has passed. Every species needs its Les Benedict, its Pigeon family, its allies and protectors. Many of our traditional teachings recognize that certain species are our helpers and guides. The Original Instructions remind us that we must return the favor. It is an honor to be the guardian of another species—an honor within each person's reach that we too often forget. A Black Ash basket is a gift that reminds us of the gifts of other beings, gifts we can gratefully return through advocacy and care.

John calls us back to the circle for the next step: assembling the bottom of the basket. We're doing a traditional round bottom, so the first two strips are laid out at right angles in a symmetrical cross. Easy. "Now take a look at what you've done," John says. "You've started with the four directions in front of you. It's the heart of your basket. Everything else is built around that." Our people honor the four sacred directions and the powers resident there. Where the two basket strips meet, at the intersection of those four directions, is right where we stand as humans, trying to find balance among them. "See there," John says, "everything we do in life is sacred. The four directions are what we build on. That's why we start like that."

Once the eight spokes of the framework are twined into place with the thinnest possible strips, each basket begins to grow. We look to John for the next set of instructions, but there are none. He says, "You're on your own now. The design of the basket is up to you. No one can tell you what to create." We have thick and thin splints to work with, and John shakes out a bag full of brightly dyed splints in every color. The tangled pile looks like the singing ribbons on the men's ribbon shirts in the evening powwows. "Just think of the tree and all its hard work before you start," he says. "It gave its life for this basket, so you know your responsibility. Make something beautiful in return."

Responsibility to the tree makes everyone pause before beginning. Sometimes I have that same sense when I face a blank sheet of paper. For me, writing is an act of reciprocity with the world; it is what I can give back in return for everything that has been given to me. And now there's another layer of responsibility, writing on a thin sheet of tree and hoping the words are worth it. Such a thought could make a person set down her pen.

The first two rows of the basket are the hardest. On the first go-round, the splint seems to have a will of its own and wants to wander from the over-under rhythm around the circle. It resists the pattern and looks all loose and wobbly. This is when John steps in to help, offering encouragement and a steady hand to anchor the escaping splints. The second row is almost as frustrating; the spacing is all wrong and you have to clamp the weaver in place to get it to stay. Even then, it comes loose and slaps you in the face with its wet end. John just laughs. It is a mess of unruly pieces, nothing like a whole. But then there's the third row—my favorite. At this point, the tension of over is balanced by the tension of under, and the opposing forces start to come into balance. The give and take—reciprocity—begins to take hold and the parts begin to become a whole. The weaving becomes easy as splints fall snugly into place. Order and stability emerge out of chaos.

In weaving well-being for land and people, we need to pay attention to the lessons of the three rows. Ecological well-being and the laws of nature are always the first row. Without them, there is no basket

of plenty. Only if that first circle is in place can we weave the second. The second reveals material welfare, the subsistence of human needs. Economy built upon ecology. But with only two rows in place, the basket is still in jeopardy of pulling apart. It's only when the third row comes that the first two can hold together. Here is where ecology, economics, and spirit are woven together. By using materials as if they were a gift, and returning that gift through worthy use, we find balance. I think that third row goes by many names: Respect. Reciprocity. All Our Relations. I think of it as the spirit row. Whatever the name, the three rows represent recognition that our lives depend on one another, human needs being only one row in the basket that must hold us all. In relationship, the separate splints become a whole basket, sturdy and resilient enough to carry us into the future.

While we're working, a gaggle of little kids comes by to watch. John is pulled in many directions to help us all, but he stops and gives his full attention to the boys. They're too little to join in, but they want to be there, so he takes up a handful of the short strips from our debris. His hands, now deliberate and slow, bend and twist the strips until a few minutes later a little toy horse sits in the palm of his hand. He gives the boys some scraps, the model, and a few words in Potawatomi, but doesn't tell them how to make a horse. They're used to this kind of teaching and don't ask questions. They look and look some more and then set to work to figure it out. Before long, a herd of horses is galloping over the table and little boys are watching baskets grow.

Toward the end of the afternoon, in the lengthening shadows, the work table begins to fill with completed baskets. John helps us add the decorative curls that are traditional on small baskets. The black ash ribbons are so flexible that you can embroider the surface of the basket with loops and twists that show off the glossy sheen of the ash. We've made low round trays, tall thin vases, plump apple baskets in textures and colors of every kind. "Here's the last step," he says, handing out Sharpie markers. "You've got to sign your basket. Take pride in what you did. That basket didn't make itself. Claim it, mistakes and all." He makes us line up for a photograph, all holding our baskets. "This is a

special occasion,” he says, beaming like a proud father. “Look what you’ve learned today. I want you to see what the baskets have shown you. Every one of them is beautiful. Every one of them is different and yet every one of them began in the same tree. They are all made of the same stuff and yet each is itself. That’s the way it is with our people, too, all made of the same thing and each their own kind of beautiful.”

That night I see the powwow circle with new eyes. I notice that the cedar arbor sheltering the drums is supported by poles set in the four directions. The drum, the heartbeat, calls us out to dance. There is one beat, but each dancer has a distinctive step: dipping grass dancers, crouching buffalo dancers, the twirl of fancy shawl dancers, high-stepping jingle-dress girls, the dignified pace of the women’s traditional dancers. Each man, each woman, each child, all dressed in their dreamed-of colors, ribbons flying, fringes swaying, all beautiful, all dancing to the heartbeat. Around the circle we go all night, together weaving a basket.

Today, my house is full of baskets and my favorites are Pigeons. In them I can hear John’s voice, can hear the *doonk, doonk, doonk*, and smell the swamp. They remind me of the years of a tree’s life that I hold in my hands. What would it be like, I wondered, to live with that heightened sensitivity to the lives given for ours? To consider the tree in the Kleenex, the algae in the toothpaste, the oaks in the floor, the grapes in the wine; to follow back the thread of life in everything and pay it respect? Once you start, it’s hard to stop, and you begin to feel yourself awash in gifts.

I open the cupboard, a likely place for gifts. I think, “I greet you, jar of jam. You glass who once was sand upon the beach, washed back and forth and bathed in foam and seagull cries, but who are formed into a glass until you once again return to the sea. And you, berries, plump in your June-ness, now in my February pantry. And you, sugar, so far from your Caribbean home—thanks for making the trip.”

In that awareness, looking over the objects on my desk—the basket,

the candle, the paper—I delight in following their origins back to the ground. I twirl a pencil—a magic wand lathed from incense cedar—between my fingers. The willow bark in the aspirin. Even the metal of my lamp asks me to consider its roots in the strata of the earth. But I notice that my eyes and my thoughts pass quickly over the plastic on my desk. I hardly give the computer a second glance. I can muster no reflective moment for plastic. It is so far removed from the natural world. I wonder if that's a place where the disconnection began, the loss of respect, when we could no longer easily see the life within the object.

And yet I mean no disrespect for the diatoms and marine invertebrates who two hundred million years ago lived well and fell to the bottom of an ancient sea, where under great pressure of a shifting earth they became oil that was pumped from the ground to a refinery where it was broken down and then polymerized to make the case of my laptop or the cap of the aspirin bottle—but being mindful in the vast network of hyperindustrialized goods really gives me a headache. We weren't made for that sort of constant awareness. We've got work to do.

But every once in a while, with a basket in hand, or a peach or a pencil, there is that moment when the mind and spirit open to all the connections, to all the lives and our responsibility to use them well. And just in that moment, I can hear John Pigeon say, "Slow down—it's thirty years of a tree's life you've got in your hands there. Don't you owe it a few minutes to think about what you'll do with it?"

MISHKOS KENOMAGWEN: THE TEACHINGS OF GRASS

I. INTRODUCTION

You can smell it before you see it, a sweetgrass meadow on a summer day. The scent flickers on the breeze, you sniff like a dog on a scent, and then it's gone, replaced by the boggy tang of wet ground. And then it's back, the sweet vanilla fragrance, beckoning.

II. LITERATURE REVIEW

Lena is not fooled easily, though. She wanders into the meadow with the certainty of her years, parting grasses with her slender form. A tiny, gray-haired elder, she is up to her waist in grass. She casts her gaze over all the other species and then makes a beeline to a patch that to the uninitiated looks like all the rest. She runs a ribbon of grass through the thumb and forefinger of her wrinkled brown hand. "See how glossy it is? It can hide from you among the others, but it wants to be found. That's why it shines like this." But she passes this patch by, letting it slide through her fingers. She obeys the teachings of her ancestors to never take the first plant that you see.

I follow behind her as her hands trail lovingly over the boneset and the goldenrod. She spies a gleam in the sward and her step quickens. "Ah, *Bozho*," she says. Hello. From the pocket of her old nylon jacket she takes her pouch, deerskin with a beaded red edge, and shakes a little tobacco into the palm of her hand. Eyes closed, murmuring, she raises a hand to the four directions and then scatters the tobacco to the ground. "You know this," she says, her eyebrows a question mark.

“To always leave a gift for the plants, to ask if we might take them? It would be rude not to ask first.” Only then does she stoop and pinch off a grass stem at its base, careful not to disturb the roots. She parts the nearby clumps, finding another and another until she has gathered a thick sheaf of shining stems. A winding path marks her progress where the meadow canopy was opened by the trail of her passage.

She passes right by many dense patches, leaving them to sway in the breeze. “It’s our way,” she says, “to take only what we need. I’ve always been told that you never take more than half.” Sometimes she doesn’t take any at all, but just comes here to check on the meadow, to see how the plants are doing. “Our teachings,” she says, “are very strong. They wouldn’t get handed on if they weren’t useful. The most important thing to remember is what my grandmother always said: ‘If we use a plant respectfully it will stay with us and flourish. If we ignore it, it will go away. If you don’t give it respect it will leave us.’” The plants themselves have shown us this—*mishkos kenomagwen*. As we leave the meadow for the path back through the woods, she twists a handful of timothy into a loose knot upon itself, beside the trail. “This tells other pickers that I’ve been here,” she says, “so that they know not to take any more. This place always gives good sweetgrass since we tend to it right. But other places it’s getting hard to find. I’m thinking that they might not be picking right. Some people, they’re in a hurry and they pull up the whole plant. Even the roots come up. That’s not the way I was taught.”

I’ve been with pickers who did that, yanking up a handful that left a little bare spot in the turf and a fuzz of broken roots on the uprooted stems. They too made offerings of tobacco and took only half, and they assured me that their method of picking was the correct one. They were defensive about the charges that their harvesting was depleting sweetgrass. I asked Lena about it and she just shrugged.

III. HYPOTHESIS

In many places, sweetgrass is disappearing from its historic locales, so the basket makers had a request for the botanists: to see if the different ways of harvesting might be the cause of sweetgrass’s leaving.

I want to help, but I'm a little wary. Sweetgrass is not an experimental unit for me; it's a gift. There is a barrier of language and meaning between science and traditional knowledge, different ways of knowing, different ways of communicating. I'm not sure I want to force the teachings of grass into the tight uniform of scientific thinking and technical writing that is required of the academy: Introduction, Literature Review, Hypothesis, Methods, Results, Discussion, Conclusions, Acknowledgments, References Cited. But I've been asked on behalf of sweetgrass, and I know my responsibility.

To be heard, you must speak the language of the one you want to listen. So, back at school, I proposed the idea as a thesis project to my graduate student Laurie. Not content with purely academic questions, she had been looking for a research project that would, as she said, "mean something to someone" instead of just sitting on the shelf.

IV. METHODS

Laurie was eager to begin, but she hadn't met Sweetgrass before. "It's the grass that will teach you," I advised, "so you have to get to know it." I took her out to our restored sweetgrass meadows and it was love at first sniff. It didn't take her long to recognize Sweetgrass after that. It was as if the plant wanted her to find it.

Together we designed experiments to compare the effects of the two harvesting methods the basket makers had explained. Laurie's education so far was full of the scientific method, but I wanted her to live out a slightly different style of research. To me, an experiment is a kind of conversation with plants: I have a question for them, but since we don't speak the same language, I can't ask them directly and they won't answer verbally. But plants can be eloquent in their physical responses and behaviors. Plants answer questions by the way they live, by their responses to change; you just need to learn how to ask. I smile when I hear my colleagues say "I discovered X." That's kind of like Columbus claiming to have discovered America. It was here all along, it's just that he didn't know it. Experiments are not about discovery but about listening and translating the knowledge of other beings.

My colleagues might scoff at the notion of basket makers as scientists, but when Lena and her daughters take 50 percent of the sweetgrass, observe the result, evaluate their findings, and then create management guidelines from them, that sounds a lot like experimental science to me. Generations of data collection and validation through time builds up to well-tested theories.

At my university, as at many others, graduate students must present their thesis ideas to a faculty committee. Laurie did a wonderful job of outlining the proposed experiment, ably describing multiple study sites, the many replicates, and intensive sampling techniques. But when she was through speaking there was an uneasy silence in the conference room. One professor shuffled through the proposal pages and pushed them aside dismissively. "I don't see anything new here for science," he said. "There's not even a theoretical framework."

A theory, to scientists, means something rather different from its popular use, which suggests something speculative or untested. A scientific theory is a cohesive body of knowledge, an explanation that is consistent among a range of cases and can allow you to predict what might happen in unknown situations. Like this one. Our research was most definitely grounded in theory—Lena's, primarily—in the traditional ecological knowledge of indigenous peoples: If we use a plant respectfully, it will flourish. If we ignore it, it will go away. This is a theory generated from millennia of observations of plant response to harvest, subject to peer review by generations of practitioners, from basket makers to herbalists. Despite the weight of this truth, the committee could only struggle not to roll their eyes.

The dean looked over the glasses that had slid down his nose, fixing Laurie with a pointed stare and directing a sidelong glance toward me. "*Anyone* knows that harvesting a plant will damage the population. You're wasting your time. And I'm afraid I don't find this whole traditional knowledge thing very convincing." Like the former schoolteacher she was, Laurie was unfailingly calm and gracious as she explained further, but her eyes were steely.

Later, though, they were filled with tears. Mine, too. In the early

years, no matter how carefully you prepared, this was nearly a rite of passage for women scientists—the condescension, the verbal smack-down from academic authorities, especially if you had the audacity to ground your work in the observations of old women who had probably not finished high school, and talked to plants to boot.

Getting scientists to consider the validity of indigenous knowledge is like swimming upstream in cold, cold water. They've been so conditioned to be skeptical of even the hardest of hard data that bending their minds toward theories that are verified without the expected graphs or equations is tough. Couple that with the unblinking assumption that science has cornered the market on truth and there's not much room for discussion.

Undeterred, we carried on. The basket makers had given us the prerequisites of the scientific method: observation, pattern, and a testable hypothesis. That sounded like science to me. So we began by setting up experimental plots in the meadows to ask the plants the question "Do these two different harvest methods contribute to decline?" And then we tried to detect their answer. We chose dense sweetgrass stands where the population had been restored rather than compromising native stands where pickers were active.

With incredible patience, Laurie did a census of the sweetgrass population in every plot to obtain precise measures of population density prior to harvest. She even marked individual stems of grass with colored plastic ties to keep track of them. When all had been tallied, she then began the harvest.

The plots were subject to one of the two harvest methods the basket makers had described. Laurie took half of the stems in each plot, pinching them off one by one carefully at the base in some plots and yanking up a tuft and leaving a small ragged gap in the sod in others. Experiments must have controls, of course, so she left an equal number of plots alone and did not harvest them at all. Pink flagging festooned the meadows to mark her study areas.

One day in the field we sat in the sun and talked about whether the method really duplicated the traditional harvest. "I know that it

doesn't," she said, "because I'm not replicating the relationship. I don't speak to the plants or make an offering." She had wrestled with this but settled on excluding it: "I honor that traditional relationship, but I couldn't ever do it as part of an experiment. It wouldn't be right on any level—to add a variable that I don't understand and that science can't even attempt to measure. And besides, I'm not qualified to speak to sweetgrass." Later, she admitted that it was hard to stay neutral in her research and avoid affection for the plants; after so many days among them, learning and listening, neutrality proved impossible. Eventually she was just careful to show them all her mindful respect, making her care a constant as well, so that she would not sway the results one way or the other. The sweetgrass she harvested was counted, weighed, and given away to basket makers.

Every few months, Laurie counted and marked all the grass in her plots: dead shoots, living ones, and brand-new shoots just pushing up from the ground. She charted the birth, the death, and the reproduction of all her grass stems. When the next July rolled around she harvested once more, just as women were doing in the native stands. For two years she harvested and measured the response of the grass along with a team of student interns. It was a little tough at first to recruit student helpers given that their task would be watching grass grow.

v. RESULTS

Laurie observed carefully and filled her notebook with measurements, charting the vigor of each plot. She worried a little when the control plots were looking a little sickly. She was relying on these controls, the unharvested patches, to be the reference point for comparing the effects of harvesting in the other plots. We hoped they would perk up when spring came.

By the second year, Laurie was expecting her first child. The grass grew and grew, as did her belly. Bending and stooping became a little more difficult, to say nothing of lying in the grass to read plant tags. But she was faithful to her plants, sitting in the dirt among them, counting and marking. She said the quiet of fieldwork, the calm of sitting in a

flower-strewn meadow with the smell of sweetgrass all around, was a good beginning for a baby. I think she was right.

As the summer wore on, it became a race to finish the research before the baby was born. Just weeks away from delivery, it became a team effort. When Laurie was done with a plot, she would call out for her field crew to help hoist her to her feet. This too was a rite of passage for women field biologists.

As her baby grew, Laurie came to believe with increasing conviction in the knowledge of her basket-making mentors, recognizing, as Western science often does not, the quality of observations from the women who had long had close relationships with plants and their habitats. They shared many of their teachings with her, and they knit many baby hats.

Baby Celia was born in the early fall, and a braid of sweetgrass was hung over her crib. While Celia slept nearby, Laurie put her data on the computer and began to make the comparisons between the harvesting methods. From the twist ties on every stem, Laurie could chart the births and deaths in the sample plots. Some plots were full of new young shoots that signaled a thriving population, and some were not.

Her statistical analyses were all sound and thorough, but she hardly needed graphs to tell the story. From across the field you could see the difference: some plots gleamed shiny golden green and some were dull and brown. The committee's criticism hovered in her mind: "Anyone knows that harvesting a plant will damage the population."

The surprise was that the failing plots were not the harvested ones, as predicted, but the unharvested controls. The sweetgrass that had not been picked or disturbed in any way was choked with dead stems while the harvested plots were thriving. Even though half of all stems had been harvested each year, they quickly grew back, completely replacing everything that had been gathered, in fact producing more shoots than were present before harvest. Picking sweetgrass seemed to actually stimulate growth. In the first year's harvest, the plants that grew the very best were the ones that had been yanked up in a handful. But, whether it was pinched singly or pulled in a clump, the end

result was nearly the same: it didn't seem to matter how the grass was harvested, only that it was.

Laurie's graduate committee had dismissed this possibility from the outset. They had been taught that harvesting causes decline. And yet the grasses themselves unequivocally argued the opposite point. After the grilling Laurie received over her research proposal, you might imagine she was dreading the thesis defense. But she had one thing skeptical scientists value most: data. While Celia slept in her proud father's arms, Laurie presented her graphs and tables to demonstrate that sweetgrass flourishes when it's harvested and declines when it is not. The doubting dean was silent. The basket makers smiled.

VI. DISCUSSION

We are all the product of our worldviews—even scientists who claim pure objectivity. Their predictions for sweetgrass were consistent with their Western science worldview, which sets human beings outside of “nature” and judges their interactions with other species as largely negative. They had been schooled that the best way to protect a dwindling species was to leave it alone and keep people away. But the grassy meadows tell us that for sweetgrass, human beings are part of the system, a vital part. Laurie's findings might have been surprising to academic ecologists but were consistent with the theory voiced by our ancestors. “If we use a plant respectfully it will stay with us and flourish. If we ignore it, it will go away.”

“Your experiment seems to demonstrate a significant effect,” said the dean. “But how do you explain it? Are you implying that the grass that was unharvested had its feelings hurt by being ignored? What is the mechanism responsible for this?”

Laurie admitted that the scientific literature held no explanations for the relationship between basket makers and sweetgrass since such questions were not generally deemed worthy of scientific attention. She turned to studies of how grasses respond to other factors, such as fire or grazing. She discovered that the stimulated growth she had observed was well known to range scientists. After all, grasses are beautifully

adapted to disturbance—it's why we plant lawns. When we mow them they multiply. Grasses carry their growing points just beneath the soil surface so that when their leaves are lost to a mower, a grazing animal, or a fire, they quickly recover.

She explained how harvesting thinned the population, allowing the remaining shoots to respond to the extra space and light by reproducing quickly. Even the pulling method was beneficial. The underground stem that connects the shoots is dotted with buds. When it's gently tugged, the stem breaks and all those buds produce thrifty young shoots to fill the gap.

Many grasses undergo a physiological change known as compensatory growth in which the plant compensates for loss of foliage by quickly growing more. It seems counterintuitive, but when a herd of buffalo grazes down a sward of fresh grass, it actually grows faster in response. This helps the plant recover, but also invites the buffalo back for dinner later in the season. It's even been discovered that there is an enzyme in the saliva of grazing buffalo that actually stimulates grass growth. To say nothing of the fertilizer produced by a passing herd. Grass gives to buffalo and buffalo give to grass.

The system is well balanced, but only if the herd uses the grass respectfully. Free-range buffalo graze and move on, not returning to the same place for many months. Thus they obey the rule of not taking more than half, of not overgrazing. Why shouldn't it also be true for people and sweetgrass? We are no more than the buffalo and no less, governed by the same natural laws.

With a long, long history of cultural use, sweetgrass has apparently become dependent on humans to create the "disturbance" that stimulates its compensatory growth. Humans participate in a symbiosis in which sweetgrass provides its fragrant blades to the people and people, by harvesting, create the conditions for sweetgrass to flourish.

It's intriguing to wonder whether the regional decline in sweetgrass might be due not to overharvesting but rather to underharvesting. Laurie and I pored over the map of historical locations for sweetgrass created by a former student, Daniela Shebitz. There were blue dots

where sweetgrass used to be found but has since disappeared. Red dots marked the few places where sweetgrass was reported historically and where it is still thriving. These red dots are not randomly scattered. They are clustered around Native communities, particularly those known for their sweetgrass basketry. Sweetgrass thrives where it is used and disappears elsewhere.

Science and traditional knowledge may ask different questions and speak different languages, but they may converge when both truly listen to the plants. To relate the story the ancestors told us to the academics in the room, however, we needed to use scientific explanations expressed in the language of mechanism and objectification: "If we remove 50 percent of the plant biomass, the stems are released from resource competition. The stimulus of compensatory growth causes an increase in population density and plant vigor. In the absence of disturbance, resource depletion and competition result in a loss of vigor and increased mortality."

The scientists gave Laurie a warm round of applause. She had spoken their language and made a convincing case for the stimulatory effect of harvesters, indeed for the reciprocity between harvesters and sweetgrass. One even retracted his initial criticism that this research would "add nothing new to science." The basket makers who sat at the table simply nodded their heads in agreement. Wasn't this just as the elders have said?

The question was, how do we show respect? Sweetgrass told us the answer as we experimented: sustainable harvesting can be the way we treat a plant with respect, by respectfully receiving its gift.

Perhaps it is no coincidence that it is Sweetgrass that reveals this story. *Wiingaashk* was the first to be planted by Skywoman on the back of Turtle Island. The grass gives its fragrant self to us and we receive it with gratitude. In return, through the very act of accepting the gift, the pickers open some space, let the light come in, and with a gentle tug bestir the dormant buds that make new grass. Reciprocity is a matter of keeping the gift in motion through self-perpetuating cycles of giving and receiving.

Our elders taught that the relationship between plants and humans must be one of balance. People can take too much and exceed the capacity of the plants to share again. That's the voice of hard experience that resonates in the teachings of "never take more than half." And yet, they also teach that we can take too little. If we allow traditions to die, relationships to fade, the land will suffer. These laws are the product of hard experience, of past mistakes. And not all plants are the same; each has its own way of regenerating. Some, unlike sweetgrass, are easily harmed by harvest. Lena would say that the key is to know them well enough to respect the difference.

VII. CONCLUSIONS

With their tobacco and their thanks, our people say to the Sweetgrass, "I need you." By its renewal after picking, the grass says to the people, "I need you, too."

Mishkos kenomagwen. Isn't this the lesson of grass? Through reciprocity the gift is replenished. All of our flourishing is mutual.

VIII. ACKNOWLEDGMENTS

In a field of tall grass, with only the wind for company, there is a language that transcends the differences between scientific and traditional understandings, the data or the prayer. The wind moves through and carries the grass song. It sounds to me like *mishhhhkos*, over and over again on ripples of moving grass. After all it has taught us, I want to say thank you.

IX. REFERENCES CITED

Wiingaashk, Buffalo, Lena, the Ancestors.

MAPLE NATION: A CITIZENSHIP GUIDE

There's just one gas station in my community. It's right there at the stop-light, also the only one. You get the picture. I'm sure that it has an official name, but we just call it the Pompey Mall. Coffee, milk, ice, dog food, you can get most anything essential to life at the mall. Duct tape to hold things together and wd-40 to get them apart. There are tins of last year's maple syrup, which I pass up, since I'm on my way to the sugar house where new syrup awaits. The clientele runs largely to pickup trucks and now and then a Prius. There aren't any snowmobiles revving at the pumps today, because the snow is just about gone.

Since it's the only place to fuel up, the lines are often long and today people stand outside in the spring sunshine, leaning against the cars, waiting their turn. Conversation, like the shelves inside, tends toward essentials—the price of gas, how the sap is running, who's got their taxes done. Sugaring season and tax season overlap around here.

“Between the price of gas and the tax man, I'm just about bled dry,” Kerm gripes as he replaces the nozzle and wipes his hands on greasy Carhartts. “Now they want to raise taxes for a windmill down to the school? All on account of global warming. Not on my dime.” One of our town officials is ahead of me in line. She's an ample woman, a former social studies teacher at the school, and does not hesitate to wag a finger in the banter. She probably had Kerm in class. “You don't like it? Don't complain if you're not there. Show up to a damn meeting.”

There's still snow under the trees, a bright blanket beneath the gray trunks and the blush of reddening maple buds. Last night, a tiny

sliver of moon hung in the deep-blue dark of early spring. That new moon ushers in our Anishinaabe new year—the *Zizibaskwet Giizis*, Maple Sugar Moon. It is when the earth starts to wake up from her well-deserved rest and renews her gifts to the people. To celebrate, I'm going sugaring.

I received my census form today; it's on the seat beside me as I drive out through the hills toward the sugarbush. If you took a biologically inclusive census of the people in this town, the maples would outnumber humans a hundred to one. In our Anishinaabe way, we count trees as people, "the standing people." Even though the government only counts humans in our township, there's no denying that we live in the nation of maples.

There's a beautiful map of bioregions drawn by an organization dedicated to restoring ancient food traditions. State boundaries disappear and are replaced by ecological regions, defined by the leading denizens of the region, the iconic beings who shape the landscape, influence our daily lives, and feed us—both materially and spiritually. The map shows the Salmon Nation of the Pacific Northwest and the Pinyon Nation of the Southwest, among others. We in the Northeast are in the embrace of the Maple Nation.

I'm thinking about what it would mean to declare citizenship in Maple Nation. Kerm would probably answer with two terse words of resentment: pay taxes. And he's right, being a citizen does mean sharing in the support of your community.

Here it is, almost tax day, when my fellow humans are getting ready to make their contribution to the well-being of the community, but the maples have been giving all year long. Their contribution of limb wood kept my old neighbor Mr. Keller's house warm all winter when he couldn't pay the oil bill. The volunteer fire department and the ambulance squad as well rely on maple contributions to their monthly pancake breakfast, to raise funds for a new engine. The trees make a real dent in the energy bill for the school with their shade, and, thanks to big canopies of maples, nobody I know ever pays a bill for air-conditioning. They donate shade to the Memorial Day parade

every year without even being asked. If it weren't for the maples' ability to break the wind, the highway department would have to plow snow-drifts off the road twice as often.

Both of my parents have been active in their town government for years, so I've seen firsthand how stewardship of a community happens. "Good communities don't make themselves," my dad said. "We've got a lot to be grateful for, and we all have to do our part to keep it going." He just retired as town supervisor. My mom is on the zoning board. From them I learned that town government is invisible to most citizens, which is perhaps as it should be—necessary services are delivered so smoothly that folks just take them for granted. The roads get plowed, the water is kept clean, the parks are kept up, and the new senior citizens center finally got built, all without much fanfare. Most people are indifferent, unless their self-interest is at stake. Then there are the chronic complainers, always on the phone to contest the tax levy, and also on the phone to object to cutbacks when the same tax levies fail.

Fortunately, there are those in every organization, few but invaluable, who know their responsibilities and seem to thrive on meeting them. They get things done. These are the ones we all rely upon, the people who take care of the rest of us, quiet leaders.

My Onondaga Nation neighbors call the maple the leader of the trees. Trees constitute the environmental quality committee—running air and water purification service 24-7. They're on every task force, from the historical society picnic to the highway department, school board, and library. When it comes to civic beautification, they alone create the crimson fall with little recognition.

We haven't even mentioned how they create habitat for songbirds, and wildlife cover, golden leaves to shuffle through, tree forts and branches for swings. Centuries of their falling leaves have built this soil, now farmed for strawberries, apples, sweet corn, and hay. How much of the oxygen in our valley comes from our maples? How much carbon is taken from the atmosphere and stored away? These processes are what ecological scientists term ecosystem services, the structures and functions of the natural world that make life possible. We can assign an

economic value to maple timber, or gallons of syrup, but ecosystem services are far more precious. And yet these services go unaccounted for in the human economy. As with the services of local government, we don't think about them unless they are missing. There is no official tax system to pay for these services, as we pay for snowplowing and school-books. We get them for free, donated continually by maples. They do their share for us. The question is: How well do we do by them?

By the time I get to the sugar house, the guys already have the pan at full boil. A forceful plume of steam billows from the open vents, signaling to folks down the road and across the valley that they're boiling today. While I'm there, a steady stream of people drop by for conversation and a gallon of new syrup. As they step into the shed, they all stop right at the door; their glasses fog up and the sweet aroma of boiling sap stops them in their tracks. I like to walk in and out over and over again, just for the rush of fragrance.

The sugar house itself is a rough wood building with a characteristic vented cupola running its length to allow the steam to escape. It whooshes up to join the downy clouds in a soft spring sky.

The fresh sap goes in at one end of the open evaporator and moves along channels under its own increasing gravity as the water is boiled away. The boil at the beginning is wild and frothy with big random bubbles and more sedate at the end as it thickens, moving from clear at the start to deep caramel at the end. You've got to take the syrup off at just the right time and density. Let it go too far and the whole affair could crystallize into a delicious brick.

It's hard work, and the two guys watching and testing have been here since early this morning. I brought along a pie so they can grab forkfuls every now and then, between tasks. As we all watch the boil, I ask them my question: What does it mean to be a good citizen of Maple Nation?

Larry is the stoker. Every ten minutes he pulls on elbow-length gloves and dons a face shield before opening the door to the fire. The heat is intense as he adds another armload of three-foot lengths of firewood one by one. "You've gotta keep it boiling heavy," he says. "We do

it the old-fashioned way. Some folks have gone to fuel oil or gas burners, but I hope we always stick with wood. It feels right.”

The woodpile is easily as big as the sugar house itself, stacked ten feet high with cord upon cord of dry split ash and birch and, of course, good hard maple. The forestry students cut and gather a fair bit of the wood from dead trees along all of our trails. “See, it works out good. To keep the sugar bush productive we thin out the competition so our sap trees can grow a nice full canopy. The trees we thin out usually end up right here, as firewood. Nothing gets wasted. That’s a kind of being a good citizen, isn’t it? You take care of the trees and they’ll take care of you.” I don’t imagine there are many colleges that run their own sugarbushes, and I’m grateful that ours does.

Bart sits by the bottling tank and chimes in: “We should save the oil for where we’ve got to have it. Wood can do this job better—and besides, it’s carbon neutral. The carbon we release from burning wood for syrup came from the trees that took it in, in the first place. It will go right back to them, with no net increase.” He goes on to explain that these forests are part of the college’s plan to be totally carbon neutral: “We actually get a tax credit by keeping our forests intact, so they can absorb carbon dioxide.”

I suppose that one of the features of being a member of a nation is shared currency. In Maple Nation, the currency is carbon. It is traded, exchanged, bartered among community members from atmosphere to tree to beetle to woodpecker to fungus to log to firewood to atmosphere and back to tree. No waste, shared wealth, balance, and reciprocity. What better model for a sustainable economy do we need?

What does it mean to be a citizen of Maple Nation? I put this question to Mark, who handles the finishing with a big paddle and the hydrometer to test the sugar concentration. “That’s a good question,” he says as he pours a few drops of cream onto the boiling syrup to quell the foam. He doesn’t answer, but opens the spigot at the bottom of the finishing pan, filling a bucket with new syrup. Later, when it has cooled a bit, he pours out a little cup for each of us, golden and warm, and raises his in a toast. “I guess this is what you do,” he says.

“You make syrup. You enjoy it. You take what you’re given and you treat it right.”

Drinking maple syrup gives you quite a sugar rush. This too is what it means to be a citizen of Maple Nation, having maple in your bloodstream, maple in your bones. We are what we eat, and with every golden spoonful maple carbon becomes human carbon. Our traditional thinking had it right: maples are people, people are maples.

Our Anishinaabe word for maple is *anenemik*, the man tree. “My wife makes maple cake,” says Mark, “and we always give out candy maple leaves at Christmas.” Larry’s favorite is to just pour it on vanilla ice cream. My ninety-six-year-old grandma likes to take a pure spoonful once in a while, when she’s feeling low. She calls it vitamin M. Next month, the college will hold a pancake breakfast here, where staff and faculty and families gather to celebrate sticky-fingered membership in Maple Nation, our bond to each other and to this land. Citizens also celebrate together.

The pan is running low, so I go with Larry down the road to the sugar bush, where a tank is slowly filling with fresh sap, drip by drip. We walk around the woods for a while, ducking under the network of tubes that gurgle like a brook, carrying the sap inside to the collecting tank. It’s not the same plinking music of old-time sap buckets, but it enables two people to do the work of twenty.

The woods are the same as countless springs before this one; the citizens of Maple Nation are starting to wake up. Snowfleas pepper the wells of deer tracks. Mosses drip with snowmelt at the base of trees, and geese race by, their V in disarray with their eagerness to be home.

As we drive back with a brimming tank, he says, “Of course sugaring is a gamble every year. It’s not like you can control the sap flow. Some years are good and some aren’t. You take what you get and be grateful for it. It all depends on the temperature, and that’s out of our hands.” But that’s not entirely true anymore. Our addiction to fossil fuel and current energy policies accelerate carbon dioxide inputs every year, unequivocally causing a global rise in temperatures. Spring comes nearly a week earlier than it did just twenty years ago.

I hate to leave, but I have to get back to my desk. On the drive home, I continue to think about citizenship. When my kids were in school they had to memorize the Bill of Rights, but I would venture to guess that maple seedlings would be schooled instead in a Bill of Responsibilities.

When I get home, I look up the citizenship oaths for various human nations. They have many elements in common. Some require allegiance to a leader. Most are a pledge of loyalty, an expression of shared beliefs and an oath to obey the laws of the land. The United States rarely permits dual citizenship—you have to choose. On what basis do we select where to invest our allegiance? If I were forced, I would choose Maple Nation. If citizenship is a matter of shared beliefs, then I believe in the democracy of species. If citizenship means an oath of loyalty to a leader, then I choose the leader of the trees. If good citizens agree to uphold the laws of the nation, then I choose natural law, the law of reciprocity, of regeneration, of mutual flourishing.

The oath of citizenship for the United States stipulates that citizens will defend the nation against all enemies and take up arms if they are called to do so. If that same oath held in Maple Nation, the trumpet call would be echoing through these wooded hills. Maples of the United States face a grave enemy. The most highly regarded models predict that the climate of New England will become hostile to sugar maples within fifty years. Rising temperatures will reduce seedling success and regeneration will thereby start to fail. It already is failing. Insects will follow, and the oaks will get the upper hand. Imagine New England without maples. Unthinkable. A brown fall instead of hills afire. Sugar houses boarded up. No more fragrant clouds of steam. Would we even recognize our homes? Is that a heartbreak we can bear?

It's a running threat on the left and the right: "If things don't change, I'm moving to Canada." It looks like the maples will have to do just that. Like the displaced farmers of Bangladesh fleeing rising sea levels, maples will become climate refugees. To survive they must migrate northward to find homes at the boreal fringe. Our energy policy is forcing them to leave. They will be exiled from their homelands for the price of cheap gas.

We do not pay at the pump for the cost of climate change, for the loss of ecosystem services provided by maples and others. Cheap gas now or maples for the next generation? Call me crazy, but I'd welcome the tax that would resolve that question.

Individuals far wiser than I have said that we get the government we deserve. That may be true. But the maples, our most generous of benefactors and most responsible of citizens, do not deserve our government. They deserve you and me speaking up on their behalf. To quote our town council woman, "Show up at the damn meeting." Political action, civic engagement—these are powerful acts of reciprocity with the land. The Maple Nation Bill of Responsibilities asks us to stand up for the standing people, to lead with the wisdom of Maples.

THE HONORABLE HARVEST

The crows see me coming across the field, a woman with a basket, and argue my provenance loudly among themselves. The soil is hard under my feet, bare except for a scattering of plow-scraped rocks and a few of last year's corn stalks, their remnant prop roots squatting like bleached-out spider legs. Years of herbicides and continuous corn have left the field sterile. Even in rain-soaked April not a blade of green shows its face. By August it will once again be a monoculture of corn plants in straight rows of indentured servitude, but for now it's my cross-country route to the woods.

My entourage of crows leaves me at the stone wall, a loose wind-row of glacial cobbles raked from the field to mark its boundary. On the other side the ground is soft underfoot and deep in centuries of leaf mold, the forest floor flocked with tiny pink spring beauties and clumps of yellow violets. The humus stirs with trout lilies and trillium poised to rise through the winter-brown mat of leaves. A wood thrush hangs a silvery trill on the still-bare branches of the maples. The dense patches of leeks are among the first to appear in the spring, their green so vivid that they signal like a neon sign: PICK ME!

I resist the urge to answer their call immediately and instead address the plants the way I've been taught: introducing myself in case they've forgotten, even though we've been meeting like this for years. I explain why I've come and ask their permission to harvest, inquiring politely if they would be willing to share.

Eating leeks is a spring tonic that blurs the line between food and

medicine. It wakens the body from its winter lassitude and quickens the blood. But I have another need, too, that only greens from this particular woods can satisfy. Both of my daughters will be home for the weekend from the far places where they live. I ask these leeks to renew the bonds between this ground and my children, so that they will always carry the substance of home in the mineral of their bones.

Some of the leaves are already expanded—stretching toward the sun—while others are still rolled into a spear, thrusting up through the duff. I dig my trowel in around the edge of the clump, but they're deeply rooted and tightly packed, resisting my efforts. It's just a small trowel and it hurts my winter-softened hand, but at last I pry out a clump and shake away the dark earth.

I expected a cluster of fat white bulbs, but in their place I find ragged papery sheathes where the bulbs should be. Withered and flaccid, they look as if all the juice has already been sucked out of them. Which it has. If you ask permission, you have to listen to the answer. I tuck them back in the soil and go home. Along the stone wall, the elderberries have broken bud and their embryonic leaves reach out like gloved purple hands.

On a day like this, when the fiddleheads are unfurling and the air is petal soft, I am awash in longing. I know that "thou shalt not covet thy neighbor's chloroplasts" is good advice and yet I must confess to full-blown chlorophyll envy. Sometimes I wish I could photosynthesize so that just by being, just by shimmering at the meadow's edge or floating lazily on a pond, I could be doing the work of the world while standing silent in the sun. The shadowy hemlocks and the waving grasses are spinning out sugar molecules and passing them on to hungry mouths and mandibles all the while listening to the warblers and watching the light dance on the water.

It would be so satisfying to provide for the well-being of others—like being a mother again, like being needed. Shade, medicine, berries, roots; there would be no end to it. As a plant I could make the campfire, hold the nest, heal the wound, fill the brimming pot.

But this generosity is beyond my realm, as I am a mere heterotroph,

a feeder on the carbon transmuted by others. In order to live, I must consume. That's the way the world works, the exchange of a life for a life, the endless cycling between my body and the body of the world. Forced to choose, I must admit I actually like my heterotroph role. Besides, if I could photosynthesize, I couldn't eat leeks.

So instead I live vicariously through the photosynthesis of others. I am not the vibrant leaves on the forest floor—I am the woman with the basket, and how I fill it is a question that matters. If we are fully awake, a moral question arises as we extinguish the other lives around us on behalf of our own. Whether we are digging wild leeks or going to the mall, how do we consume in a way that does justice to the lives that we take?

In our oldest stories, we are reminded that this was a question of profound concern for our ancestors. When we rely deeply on other lives, there is urgency to protect them. Our ancestors, who had so few material possessions, devoted a great deal of attention to this question, while we who are drowning in possessions scarcely give it a thought. The cultural landscape may have changed, but the conundrum has not—the need to resolve the inescapable tension between honoring life around us and taking it in order to live is part of being human.

A few weeks later I take up my basket and again cross the field, still bare while the earth on the other side of the wall is drifted in snowy white trillium blossoms like a late-season snowfall. I must look like a ballet dancer tiptoeing and spinning between clumps of delicate Dutchman's-breeches, mysterious blue shoots of cohosh, patches of bloodroot, and the green shoots of jack-in-the-pulpit and mayapple surging up through the leaves. I greet them one by one and feel as if they're glad to see me, too.

We are told to take only that which is given, and when I was here last the leeks had nothing to give. Bulbs hold energy saved up for the next generation like money in the bank. Last fall the bulbs were sleek and fat, but, in the first days of spring, that savings account gets depleted as the roots send their stored energy into the emerging leaves to fuel their journey from soil to sunshine. In their first few days, the

leaves are consumers, taking from the root, shriveling it up and giving nothing back. But as they unfurl they become a powerful solar array that will recharge the energy of the roots, playing out the reciprocity between consuming and producing in a few short weeks.

The leeks today are twice the size they were on my first visit and the scent of onions is strong where a deer has bruised the leaves. I pass by the first clump and kneel by the second. Once again, I quietly ask permission.

Asking permission shows respect for the personhood of the plant, but it is also an assessment of the well-being of the population. Thus I must use both sides of my brain to listen to the answer. The analytic left reads the empirical signs to judge whether the population is large and healthy enough to sustain a harvest, whether it has enough to share. The intuitive right hemisphere is reading something else, a sense of generosity, an open-handed radiance that says *take me*, or sometimes a tight-lipped recalcitrance that makes me put my trowel away. I can't explain it, but it is a kind of knowing that is for me just as compelling as a no-trespassing sign. This time, when I push my trowel deep I come up with a thick cluster of gleaming white bulbs, plump, slippery, and aromatic. I hear *yes*, so I make a gift from the soft old tobacco pouch in my pocket and begin to dig.

Leeks are clonal plants that multiply by division, spreading the patch wider and wider. As a result, they tend to become crowded in the center of a patch, so I try to harvest there. In this way my taking can help the growth of the remaining plants by thinning them out. From camas bulbs to sweetgrass, blueberries to basket willow, our ancestors found ways to harvest that bring long-term benefit to plants and people.

While a sharp shovel would make digging more efficient, the truth is that it makes the work too fast. If I could get all the leeks I needed in five minutes, I'd lose that time on my knees watching the ginger poke up and listening to the oriole that has just returned home. This is truly a choice for "slow food." Besides, that simple shift in technology would also make it easy to slice through neighboring plants and take too much. Woods throughout the country are losing their leeks to

harvesters who love them to extinction. The difficulty of digging is an important constraint. Not everything should be convenient.

The traditional ecological knowledge of indigenous harvesters is rich in prescriptions for sustainability. They are found in Native science and philosophy, in lifeways and practices, but most of all in stories, the ones that are told to help restore balance, to locate ourselves once again in the circle.

Anishinaabe elder Basil Johnston tells of the time our teacher Nanabozho was fishing in the lake for supper, as he often did, with hook and line. Heron came striding along through the reeds on his long, bent legs, his beak like a spear. Heron is a good fisherman and a sharing friend, so he told Nanabozho about a new way to fish that would make his life much easier. Heron cautioned him to be careful not to take too many fish, but Nanabozho was already thinking of a feast. He went out early the next day and soon had a whole basketful of fish, so heavy he could barely carry it and far more than he could eat. So he cleaned all those fish and set them out to dry on the racks outside his lodge. The next day, with his belly still full, he went back to the lake and again did what Heron had showed him. “Aah,” he thought as he carried home the fish, “I will have plenty to eat this winter.”

Day after day he stuffed himself and, as the lake grew empty, his drying racks grew full, sending out a delicious smell into the forest where Fox was licking his lips. Again he went to the lake, so proud of himself. But that day his nets came up empty and Heron looked down on him as he flew over the lake with a critical eye. When Nanabozho got home to his lodge, he learned a key rule—never take more than you need. The racks of fish were toppled in the dirt and every bite was gone.

Cautionary stories of the consequences of taking too much are ubiquitous in Native cultures, but it's hard to recall a single one in English. Perhaps this helps to explain why we seem to be caught in a trap of overconsumption, which is as destructive to ourselves as to those we consume.

Collectively, the indigenous canon of principles and practices that govern the exchange of life for life is known as the Honorable Harvest. They are rules of sorts that govern our taking, shape our relationships with the natural world, and rein in our tendency to consume—that the world might be as rich for the seventh generation as it is for our own. The details are highly specific to different cultures and ecosystems, but the fundamental principles are nearly universal among peoples who live close to the land.

I am a student of this way of thinking, not a scholar. As a human being who cannot photosynthesize, I must struggle to participate in the Honorable Harvest. So I lean in close to watch and listen to those who are far wiser than I am. What I share here, in the same way they were shared with me, are seeds gleaned from the fields of their collective wisdom, the barest surface, the moss on the mountain of their knowledge. I feel grateful for their teachings and responsible for passing them on as best I can.

My friend is the town clerk in a small Adirondack village. In the summer and fall there is a line outside her door for fishing and hunting licenses. With every laminated card, she hands out the harvesting regulations, pocket-size booklets on thin newsprint, printed in black and white except for glossy inserts with photos of the actual prey, just in case people don't know what they're shooting at. It happens: every year there is a story about triumphal deer hunters being stopped on the highway with a Jersey calf tied to their bumper.

A friend of mine once worked at a hunting check station during partridge season. A guy drove up in a big white Oldsmobile and proudly opened his trunk for inspection of his take. The birds were all neatly laid out on a canvas sheet, lined up beak to back with plumage scarcely ruffled, a whole brace of yellow-shafted flickers.

Traditional peoples who feed their families from the land have harvest guidelines too: detailed protocols designed to maintain the health and vigor of wildlife species. Like the state regulations, they too are

based on sophisticated ecological knowledge and long-term monitoring of populations. They share the common goal of protecting what hunting managers call “the resource,” both for its own sake and to safeguard the sustainable supply for future generations.

Early colonists on Turtle Island were stunned by the plenitude they found here, attributing the richness to the bounty of nature. Settlers in the Great Lakes wrote in their journals about the extraordinary abundance of wild rice harvested by Native peoples; in just a few days, they could fill their canoes with enough rice to last all year. But the settlers were puzzled by the fact that, as one of them wrote, “the savages stopped gathering long before all the rice was harvested.” She observed that “the rice harvest starts with a ceremony of thanksgiving and prayers for good weather for the next four days. They will harvest dawn till dusk for the prescribed four days and then stop, often leaving much rice to stand unreaped. This rice, they say, is not for them but for the Thunders. Nothing will compel them to continue, therefore much goes to waste.” The settlers took this as certain evidence of laziness and lack of industry on the part of the heathens. They did not understand how indigenous land-care practices might contribute to the wealth they encountered.

I once met an engineering student visiting from Europe who told me excitedly about going ricing in Minnesota with his friend’s Ojibwe family. He was eager to experience a bit of Native American culture. They were on the lake by dawn and all day long they poled through the rice beds, knocking the ripe seed into the canoe. “It didn’t take long to collect quite a bit,” he reported, “but it’s not very efficient. At least half of the rice just falls in the water and they didn’t seem to care. It’s wasted.” As a gesture of thanks to his hosts, a traditional ricing family, he offered to design a grain capture system that could be attached to the gunwales of their canoes. He sketched it out for them, showing how his technique could get 85 percent more rice. His hosts listened respectfully, then said, “Yes, we could get more that way. But it’s got to seed itself for next year. And what we leave behind is not wasted. You know, we’re not the only ones who like rice. Do you think

the ducks would stop here if we took it all?” Our teachings tell us to never take more than half.

When my basket holds enough leeks for dinner, I head home. Walking back through the flowers, I see a whole patch of snakeroot spreading its glistening leaves, which reminds me of a story told by an herbalist I know. She taught me one of the cardinal rules of gathering plants: “Never take the first plant you find, as it might be the last—and you want that first one to speak well of you to the others of her kind.” That’s not too hard to do when you come upon a whole stream bank of coltsfoot, when there’s a third and a fourth right behind the first, but it’s harder when the plants are few and the desire is great.

“Once I dreamed of a snakeroot and that I should bring it with me on a journey the next day. There was a need but I didn’t know what it was. But it was still too early to harvest. The leaves wouldn’t be up for another week or so. There was a chance it might be up early somewhere—maybe in a sunny spot, so I went to look in the usual place I pick those medicines,” the herbalist recalled for me. The bloodroot was out and the spring beauties, too. She greeted them as she walked past, but saw none of the plant she sought. She stepped more slowly, opening her awareness, making her whole self into a halo of peripheral vision. Nestled at the base of a maple, on the southeast side, the snakeroot made itself visible, a glossy mass of dark-green leaves. She knelt, smiling, and spoke quietly. She thought of her upcoming journey, the empty bag in her pocket, and then slowly rose to her feet. Though her knees were stiff with age, she walked away, refraining from taking the first one.

She wandered through the woods, admiring the trillium just poking their heads up. And the leeks. But there was no more snakeroot. “I just figured I’d have to do without. I was halfway home when I found I’d lost my little shovel, the one I always use for digging medicine. So I had to go back. Well, I found it all right—it’s got a red handle so it’s easy to find. And you know, it had fallen from my pocket right in a patch of

root. So I talked to that plant, addressed it just like you would a person whose help you needed, and it gave me a bit of itself. When I got where I was going, sure enough, there was a woman there who needed that snakeroot medicine and I could pass on the gift. That plant reminded me that if we harvest with respect, the plants will help us.”

The guidelines for the Honorable Harvest are not written down, or even consistently spoken of as a whole—they are reinforced in small acts of daily life. But if you were to list them, they might look something like this:

Know the ways of the ones who take care of you, so that you may take care of them.

Introduce yourself. Be accountable as the one who comes asking for life.

Ask permission before taking. Abide by the answer.

Never take the first. Never take the last.

Take only what you need.

Take only that which is given.

Never take more than half. Leave some for others.

Harvest in a way that minimizes harm.

Use it respectfully. Never waste what you have taken.

Share.

Give thanks for what you have been given.

Give a gift, in reciprocity for what you have taken.

Sustain the ones who sustain you and the earth will last forever.

The state guidelines on hunting and gathering are based exclusively in the biophysical realm, while the rules of the Honorable Harvest are based on accountability to both the physical and the metaphysical worlds. The taking of another life to support your own is far more significant when you recognize the beings who are harvested as persons, nonhuman persons vested with awareness, intelligence, spirit—and who have families waiting for them at home. Killing a *who* demands something different than killing an *it*. When you regard those nonhuman persons as kinfolk, another set of harvesting regulations extends beyond bag limits and legal seasons.

The state regulations are, by and large, lists of illegal practices: “It is unlawful to keep a rainbow trout whose length from snout to posterior fin does not exceed twelve inches.” The consequences for breaking the law are clearly stipulated and involve a financial transaction after a visit with your friendly conservation officer.

Unlike the state laws, the Honorable Harvest is not an enforced legal policy, but it is an agreement nonetheless, among people and most especially between consumers and providers. The providers have the upper hand. The deer, the sturgeon, the berries, and the leeks say, “If you follow these rules, we will continue to give our lives so that you may live.”

Imagination is one of our most powerful tools. What we imagine, we can become. I like to imagine what it would be like if the Honorable Harvest were the law of the land today, as it was in our past. Imagine if a developer, eying open land for a shopping mall, had to ask the goldenrod, the meadowlarks, and the monarch butterflies for permission to take their homeland. What if he had to abide by the answer? Why not?

I like to imagine a laminated card, like the one my friend the town clerk hands out with the hunting and fishing licenses, embossed with the rules of the Honorable Harvest. Everyone would be subject to the same laws, since they are, after all, the dictates of the *real* government: the democracy of species, the laws of Mother Nature.

When I ask my elders about the ways our people lived in order to keep the world whole and healthy, I hear the mandate to take only what you need. But we human people, descendants of Nanabozho, struggle, as he did, with self-restraint. The dictum to take only what you need leaves a lot of room for interpretation when our needs get so tangled with our wants.

This gray area yields then to a rule more primal than need, an old teaching nearly forgotten now in the din of industry and technology. Deeply rooted in cultures of gratitude, this ancient rule is not just to take only what you need, but to take only that which is given.

At the level of human interactions, we already do this. It’s what we teach our kids. If you’re visiting your sweet grandma and she offers you homemade cookies on her favorite china plate, you know what to do.

You accept them with many “thank yous” and cherish the relationship reinforced by cinnamon and sugar. You gratefully take what has been given. But you wouldn’t dream of breaking into her pantry and just taking all the cookies without invitation, grabbing her china plate for good measure. That would be at a minimum a breach of good manners, a betrayal of the loving relationship. What’s more, your grandma would be heartbroken, and not inclined to bake more cookies for you any time soon.

As a culture, though, we seem unable to extend these good manners to the natural world. The dishonorable harvest has become a way of life—we take what doesn’t belong to us and destroy it beyond repair: Onondaga Lake, the Alberta tar sands, the rainforests of Malaysia, the list is endless. They are gifts from our sweet Grandmother Earth, which we take without asking. How do we find the Honorable Harvest again?

If we’re picking berries or gathering nuts, taking only what is given makes a lot of sense. They offer themselves and by taking them we fulfill our reciprocal responsibility. After all, the plants have made these fruits with the express purpose of our taking them, to disperse and plant. By our use of their gifts, both species prosper and life is magnified. But what about when something is taken without a clear avenue for mutual benefit, when someone is going to lose?

How can we distinguish between that which is given by the earth and that which is not? When does taking become outright theft? I think my elders would counsel that there is no one path, that each of us must find our own way. In my wandering with this question, I’ve found dead ends and clear openings. Discerning all that it might mean is like bush-whacking through dense undergrowth. Sometimes I get faint glimpses of a deer trail.

It is hunting season and we are sitting on the porch of the cookhouse at Onondaga on a hazy October day. The leaves are smoky gold and fluttering down while we listen to the men tell stories. Jake, with a red bandanna around his hair, gets everybody laughing with a story about

Junior's never-fail turkey call. With his feet on the railing and black braid hanging over the back of his chair, Kent tells about following a blood trail over new-fallen snow, bear tracking, and the one that got away. For the most part they're young men with reputations to build, along with one elder.

In a Seventh Generation ball cap and a thin gray ponytail, Oren gets his turn at a story and leads us along with him, through thickets and down ravines to get to his favorite hunting spot. Smiling in recollection, he says, "I must have seen ten deer that day, but I only took one shot." He tips his chair back and looks at the hill, remembering. The young men listen, looking intently at the porch floor. "The first one came crunching through the dry leaves, but was shielded by the brush as it wove down the hill. It never saw me sitting there. Then a young buck came moving upwind toward me and then stepped behind a boulder. I could have tracked it and followed it across the crick, but I knew it wasn't the one." Deer by deer, he recounts the day's encounters for which he never even raised his rifle: the doe by the water, the three-pointer concealed behind a basswood with only its rump showing. "I only take one bullet with me," he says.

The young men in T-shirts lean forward on the bench across from him. "And then, without explanation, there's one who walks right into the clearing and looks you in the eye. He knows full well that you're there and what you're doing. He turns his flank right toward you for a clear shot. I know he's the one, and so does he. There's a kind of nod exchanged. That's why I only carry one shot. I wait for the one. He gave himself to me. That's what I was taught: take only what is given, and then treat it with respect." Oren reminds his listeners, "That's why we thank the deer as the leader of the animals, for its generosity in feeding the people. Acknowledging the lives that support ours and living in a way that demonstrates our gratitude is a force that keeps the world in motion."

The Honorable Harvest does not ask us to photosynthesize. It does not say *don't take*, but offers inspiration and a model for what we *should* take. It's not so much a list of "do not's" as a list of "do's." *Do* eat food

that is honorably harvested, and celebrate every mouthful. *Do* use technologies that minimize harm; *do* take what is given. This philosophy guides not only our taking of food, but also any taking of the gifts of Mother Earth—air, water, and the literal body of the earth: the rocks and soil and fossil fuels.

Taking coal buried deep in the earth, for which we must inflict irreparable damage, violates every precept of the code. By no stretch of the imagination is coal “given” to us. We have to wound the land and water to gouge it from Mother Earth. What if a coal company planning mountaintop removal in the ancient folds of the Appalachians were compelled by law to take only that which is given? Don’t you long to hand them the laminated card and announce that the rules have changed?

It doesn’t mean that we can’t consume the energy we need, but it does mean that we honorably take only what is given. The wind blows every day, every day the sun shines, every day the waves roll against the shore, and the earth is warm below us. We can understand these renewable sources of energy as given to us, since they are the sources that have powered life on the planet for as long as there has been a planet. We need not destroy the earth to make use of them. Solar, wind, geothermal, and tidal energy—the so-called “clean energy” harvests—when they are wisely used seem to me to be consistent with the ancient rules of the Honorable Harvest.

And the code might ask of any harvest, including energy, that our purpose be worthy of the harvest. Oren’s deer made moccasins and fed three families. What will we use our energy for?

I once gave a lecture titled “Cultures of Gratitude” at a small private college where tuition ran upwards of \$40,000 a year. For the allocated fifty-five minutes, I talked about the Thanksgiving Address of the Haudenosaunee, the potlatch tradition of the Pacific Northwest, and the gift economies of Polynesia. Then I told a traditional story of the years when the corn harvests were so plentiful that the caches were full. The fields had been so generous with the villagers that the

people scarcely needed to work. So they didn't. Hoes leaned against a tree, idle. The people became so lazy that they let the time for corn ceremonies go by without a single song of gratitude. They began to use the corn in ways the Three Sisters had not intended when they gave the people corn as a sacred gift of food. They burned it for fuel when they couldn't be bothered to cut firewood. The dogs dragged it off from the untidy heaps the people made instead of storing the harvest in secure granaries. No one stopped the kids when they kicked ears around the village in their games.

Saddened by the lack of respect, the Corn Spirit decided to leave, to go where she would be appreciated. At first the people didn't even notice. But the next year, the cornfields were nothing but weeds. The caches were nearly empty and the grain that had been left untended was moldy and mouse-chewed. There was nothing to eat. The people sat about in despair, growing thinner and thinner. When they abandoned gratitude, the gifts abandoned them.

One small child walked out from the village and wandered for hungry days until he found the Corn Spirit in a sunlit clearing in the woods. He begged her to return to his people. She smiled kindly at him and instructed him to teach his people the gratitude and respect that they had forgotten. Only then would she return. He did as she asked and after a hard winter without corn, to remind them of the cost, she returned to them in the spring.*

Several students in my audience yawned. They could not imagine such a thing. The aisles of the grocery store were always well stocked. At a reception afterward the students filled their Styrofoam plates with the usual fare. We exchanged questions and comments while we balanced plastic cups of punch. The students grazed on cheese and crackers, a profusion of cut vegetables, and buckets of dip. There was enough food to feast a small village. The leftovers were swept into trash bins placed conveniently next to the tables.

A beautiful young girl, dark hair tied up in a headscarf, was hanging back from the discussion, waiting her turn. When nearly everyone had left she approached me, gesturing with an apologetic smile

* This story is known from the southwest to the northeast. One version is told by Joseph Bruchac, in Caduto and Bruchac's *Keepers of Life*.

at the wasted remains of the reception. “I don’t want you to think no one understands what you were saying,” she said. “I do. You sound like my grandmother, back in my village in Turkey. I will tell her she must have a sister here in the United States. The Honorable Harvest is her way, too. In her house, we learned that everything we put in our mouths, everything that allows us to live, is the gift of another life. I remember lying with her at night as she made us thank the rafters of her house and the wool blankets we slept in. My grandma wouldn’t let us forget that these are all gifts, which is why you take care of everything, to show respect for that life. In my grandmother’s house we were taught to kiss the rice. If a single grain fell to the ground, we learned to pick it up and kiss it, to show we meant no disrespect in wasting it.” The student told me that, when she came to the United States, the greatest culture shock she experienced was not language or food or technology, but waste.

“I’ve never told anyone before,” she said, “but the cafeteria made me sick, because of the way people treated their food. What people throw away here after one lunch would supply my village for days. I could not speak to anyone of this; no one else would understand to kiss the grain of rice.” I thanked her for her story and she said, “Please, take it as a gift, and give it to someone else.”

I’ve heard it said that sometimes, in return for the gifts of the earth, gratitude is enough. It is our uniquely human gift to express thanks, because we have the awareness and the collective memory to remember that the world could well be otherwise, less generous than it is. But I think we are called to go beyond cultures of gratitude, to once again become cultures of reciprocity.

I met Carol Crowe, an Algonquin ecologist, at a meeting on indigenous models of sustainability. She told the story of requesting funding from her tribal council to attend the conference. They asked her, “What is this all about, this notion of sustainability? What are they talking about?” She gave them a summary of the standard definitions of sustainable development, including “the management of natural resources and social institutions in such a manner as to ensure the

attainment and continued satisfaction of human needs for present and future generations.” They were quiet for a while, considering. Finally one elder said, “This sustainable development sounds to me like they just want to be able to keep on taking like they always have. It’s always about taking. You go there and tell them that in our way, our first thoughts are not ‘What can we take?’ but ‘What can we give to Mother Earth?’ That’s how it’s supposed to be.”

The Honorable Harvest asks us to give back, in reciprocity, for what we have been given. Reciprocity helps resolve the moral tension of taking a life by giving in return something of value that sustains the ones who sustain us. One of our responsibilities as human people is to find ways to enter into reciprocity with the more-than-human world. We can do it through gratitude, through ceremony, through land stewardship, science, art, and in everyday acts of practical reverence.

I have to confess that I’d shuttered my mind before I even met him. There was nothing a fur trapper could say that I wanted to hear. Berries, nuts, leeks, and, arguably, that deer who looks you in the eye, are all part of the matrix of the Honorable Harvest, but laying snares for snowy ermine and soft-footed lynx in order to adorn wealthy women is hard to justify. But I would certainly be respectful and listen.

Lionel grew up in the north woods, hunting, fishing, guiding, making a living off the land in a remote log cabin, carrying on the tradition of the *coureurs des bois*. He learned trapping from his Indian grandfather who was renowned for his skills on the trapline. To catch a mink, you have to be able to think like a mink. His grandpa was a successful trapper because of his deep respect for the knowledge of the animals, where they traveled, how they hunted, where they would den up in bad weather. He could see the world through ermine eyes and so provided for his family.

“I loved living in the bush,” Lionel says, “and I loved the animals.” Fishing and hunting gave the family their food; the trees gave them heat; and after their needs for warm hats and mittens were provided

for, the furs they sold every year gave them cash for kerosene, coffee, beans, and school clothes. It was assumed that he would follow in the trade, but as a young man he refused. He wanted nothing more of trapping in the years when leg-hold traps became the norm. It was a cruel technology. He'd seen the animals who gnawed off their feet to free themselves. "Animals do have to die for us to live, but they don't have to suffer," he says.

To stay in the bush he tried logging. He was practiced in the old methods for sledding out timber in the winter along an ice road, felling while the snow blanket protected the earth. But the old, low-impact practices had given way to big machines that ripped up the forest and wrecked the land his animals needed. The dark forest turned to ragged stumps, the clear streams to muddy trenches. He tried to work in the cab of the D9 Cat, and a feller-buncher, a machine designed to take it all. But he couldn't do it.

Then Lionel went to work in the mines at Sudbury, Ontario, left the woods to work underground, digging nickel ore from the earth to be fed into the maw of furnaces. Sulfur dioxide and heavy metals poured from the stacks, making a toxic acid rain that killed every living thing for miles, a gigantic burn mark on the land. Without vegetation, the soil all washed away, leaving a moonscape so bare that NASA used it to test lunar vehicles. The metal smelters at Sudbury held the earth in a leg-hold trap, and the forest was dying a slow and painful death. Too late, after the damage was done, Sudbury became the poster child for clean-air legislation.

There is no shame in working the mines to feed your family—an exchange of hard labor in return for food and shelter—but you want your labor to count for something more. Driving home each night through the moonscape his labor created, he felt blood on his hands, and so he quit.

Today Lionel spends his winter days on snowshoes on his trapline and winter nights preparing furs. Unlike the harsh chemicals of the factory, brain tanning yields the softest, most durable hide. He says with wonder in his voice and a soft moose hide on his lap, "There is

just enough in each animal's brain to tan its own hide." His own brain and his heart led him back home to the woods.

Lionel is of the Métis Nation; he calls himself "a blue-eyed Indian," raised in the deep woods of northern Quebec, as his melodious accent suggests. His conversation is so delightfully sauced with "*Oui, oui, madame*" that I imagine he will kiss my hand at any moment. His own hands are telling: woodsman's hands broad and strong enough to set a trap or a logging chain but sensitive enough to stroke a pelt to gauge its thickness. By the time we spoke, leg-hold traps had been banned in Canada and only body-hold traps that ensure a sudden death were permitted. He demonstrates one: it takes two strong arms to open and set, and its powerful snap would break a neck in an instant.

Trappers spend more time on the land than anyone else these days, and they maintain detailed records of their harvest. Lionel keeps a thickly penciled notebook in his vest pocket; he takes it out and waves it, saying, "Wanna see my new BlackBerry? I just download my data to my bush computer, runs on propane, don't you know."

His traplines yield beaver, lynx, coyote, fisher, mink, and ermine. He runs his hand over the pelts, explaining about the density of the winter undercoat and the long guard hairs, how you can judge the health of an animal by its fur. He pauses when he comes to martens, whose pelage is legendary in its silky-soft luxury—the American sable. It is beautifully colored and feather light.

Martens are part of Lionel's life here—they're his neighbors and he is thankful that they have rebounded from near extirpation. Trappers like him are on the front line of monitoring wildlife populations and well-being. They have a responsibility to take care of the species they rely upon, and every visit to the trapline produces data that govern the trapper's response. "If we catch only male martens, we will keep the traps open," he says. When there is an excess of unpaired males, they are wandering and easy to trap. Too many young males can leave less food for the others. "But as soon as we get a female, we stop trapping. That means we've skimmed off the excess and we don't touch the rest.

That way the population doesn't get too crowded, none will go hungry, but their population will continue to grow."

In late winter, when the snow is still heavy but the days are lengthening, Lionel drags down the ladder from the rafters in his garage. He straps on his snowshoes and stomps out into the bush with the ladder on his shoulder and hammer, nails, and scrap wood in his pack basket. He scouts out just the right spots: big old trees with cavities are best, as long as the size and shape of the hole dictates that only a single species can use it. He climbs to where the ladder, anchored in the snow, leans against a high branch and he constructs a platform. He makes it home before dark and rises the next day to do it again. It's hard work lugging a ladder through the woods. When he's done with the platforms, he pulls a white plastic pail from the freezer and sets it by the woodstove to thaw.

All summer long Lionel serves as a fishing guide on the remote lakes and rivers of his birth. He jokes that he works for only himself now and he calls his company See More and Do Less. Not a bad business plan. When he and his "sports" clean their catch he scrapes the guts into big white pails and keeps them in his freezer. He overheard his clients whispering, "Must be he eats fish-gut stew in the winter."

The next day he's off again, pulling the bucket on a sled, miles down the trapline. At every platform tree, he scrambles up the ladder, with somewhat less grace than a weasel, one-handed. (You don't want to slop fish guts all over yourself.) He shovels out a big smelly scoop onto each platform and then hikes off to the next.

Like many predators, martens are slow reproducers, which makes them vulnerable to decline, especially when they're exploited. Gestation is about nine months, and they don't give birth until they're three years old. They'll have from one to four young and raise only as many as the food supply allows. "I put out the gut piles in the last weeks before the little mothers give birth," Lionel says. "If you put them where nothing else can get them, those mothers will have some extra-good meals. That will help them to nurse their babies so more will survive, especially if we get a late snow or something." The tenderness in his voice

makes me think of a neighbor delivering a warm casserole to a shut-in. It's not how I've thought of trappers. "Well," he says, blushing a little, "dose little martens take care of me and I take care of dem."

The teachings tell us that a harvest is made honorable by what you give in return for what you take. There is no escaping the fact that Lionel's care will result in more martens on his trapline. There is no escaping the fact that they will also be killed. Feeding mama martens is not altruism; it is deep respect for the way the world works, for the connections between us, of life flowing into life. The more he gives, the more he can take, and he goes the extra mile to give more than he takes.

I'm moved by Lionel's affection and respect for these animals, for the care that flows from his intimate knowledge of their needs. He lives the tension of loving his prey and resolves it for himself by practicing the tenets of the Honorable Harvest. But there is also no escaping the fact that the marten pelts are likely to become a luxury coat for a very wealthy person, perhaps the owner of the Sudbury mine.

These animals will die by his hand, but first they will live well, in part by his hand. His lifestyle, which I had condemned without understanding, protects the forest, protects the lakes and rivers, not just for him and the furbearers, but for all the forest beings. A harvest is made honorable when it sustains the giver as well as the taker. And today Lionel is also a gifted teacher, invited to schools far and wide to share his traditional knowledge of wildlife and conservation. He is giving back what was given to him.

It's hard for the guy wearing the sable in the corner office of Sudbury to imagine Lionel's world, to even conceive of a way of living that would require him to consider taking only what he needs, to give back in reciprocity for what he takes, to nurture the world that nurtures him, to carry meals to a nursing mother in a wild treetop den. But unless we want more wastelands, he needs to learn.

These may seem like charming anachronisms, rules for hunting and gathering whose relevance vanished along with the buffalo. But remember that the buffalo are not extinct and in fact are making a resurgence

under the care of those who remember. The canon of the Honorable Harvest is poised to make its comeback, too, as people remember that what's good for the land is also good for the people.

We need acts of restoration, not only for polluted waters and degraded lands, but also for our relationship to the world. We need to restore honor to the way we live, so that when we walk through the world we don't have to avert our eyes with shame, so that we can hold our heads up high and receive the respectful acknowledgment of the rest of the earth's beings.

I feel lucky to have wild leeks, dandelion greens, marsh marigolds, and hickory nuts—if I get there before the squirrels do. But these are decorations on a diet that comes mostly from my garden and from the grocery store, like everyone else, especially now that more people live in urban centers than the countryside.

Cities are like the mitochondria in our animal cells—they are consumers, fed by the autotrophs, the photosynthesis of a distant green landscape. We could lament that urban dwellers have little means of exercising direct reciprocity with the land. Yet while city folks may be separated from the sources of what they consume, they can exercise reciprocity through how they spend their money. While the digging of the leeks and the digging of the coal may be too far removed to see, we consumers have a potent tool of reciprocity right in our pockets. We can use our dollars as the indirect currency of reciprocity.

Perhaps we can think of the Honorable Harvest as a mirror by which we judge our purchases. What do we see in the mirror? A purchase worthy of the lives consumed? Dollars become a surrogate, a proxy for the harvester with hands in the earth, and they can be used in support of the Honorable Harvest—or not.

It's easy to make this argument, and I believe that the principles of the Honorable Harvest have great resonance in an era when overconsumption threatens every dimension of our well-being. But it can be too easy to shift the burden of responsibility to the coal company or the land developers. What about me, the one who buys what they sell, who is complicit in the dishonorable harvest?

I live in the country, where I grow a big garden, get eggs from my

neighbor's farm, buy apples from the next valley over, pick berries and greens from my few rewilding acres. A lot of what I own is second-hand, or third. The desk that I'm writing on was once a fine dining table that someone set out on the curb. But while I heat with wood, compost and recycle, and do myriad other responsible things, if I did an honest inventory of my household, most of it would probably not make the grade of the Honorable Harvest.

I want to do the experiment, to see if one can subsist in this market economy and still practice the rules of the Honorable Harvest. So I take my shopping list and go forth.

Actually, our local grocery store makes it pretty easy to be mindful of the choices and the mantra of mutual benefit for land and people. They've partnered with farmers for local organic goods at a price normal people can afford. They're big on "green" and recycled products, too, so I can hold my toilet paper purchase up to the mirror of the Honorable Harvest without flinching. When I walk the aisles with open eyes, the source of the food is mostly evident, although Cheetos and Ding Dongs remain an ecological mystery. For the most part, I can use dollars as the currency of good ecological choices, alongside my questionable but persistent need for chocolate.

I don't have much patience with food proselytizers who refuse all but organic, free-range, fair-trade gerbil milk. We each do what we can; the Honorable Harvest is as much about the relationships as about the materials. A friend of mine says she buys just one green item a week—that's all she can do, so she does it. "I want to vote with my dollar," she says. I can make choices because I have the disposable income to choose "green" over less-expensive goods, and I hope that will drive the market in the right direction. In the food deserts of the South Side there is no such choice, and the dishonor in that inequity runs far deeper than the food supply.

I am stopped in my tracks in the produce section. There on a Styrofoam tray, sheathed in plastic and tagged at the princely sum of \$15.50 per pound, are Wild Leeks. The plastic presses down on them: they look trapped and suffocated. Alarm bells go off in my head,

alarms of commoditization of what should be regarded as a gift and all the dangers that follow from that kind of thinking. Selling leeks makes them into mere objects and cheapens them, even at \$15.50 per pound. Wild things should not be for sale.

Next stop is the mall, a place I try to avoid at all costs, but today I will go into the belly of the beast in service to my experiment. I sit in the car for a few minutes trying to rouse the same attunement and outlook with which I go to the woods, receptive, observant, and grateful, but I'll be gathering a new stock of paper and pens instead of wild leeks.

There is a stone wall to cross here, too, the three-story edifice of the mall, bordered by another lifeless field of parking lot, with crows perched on the stanchions. As I cross the wall, the floor is hard beneath my feet and heels click on the faux-marble tile. I pause to take in the sounds. Inside, there are neither crows nor wood thrushes, but rather a soundtrack of strangely sanitized oldies set to strings, hovering above the drone of the ventilation system. The light is dim fluorescent with spotlights to dapple the floor, the better to highlight the splashes of color which identify the shops, their logos as readily identifiable as patches of bloodroot across the forest. Like in the spring woods, the air is a patchwork of scents that I walk among: coffee here, cinnamon buns there, a shop of scented candles, and beneath it all the pervasive tang of fast-food Chinese from the food court.

At the end of the wing, I spy the habitat of my quarry. I navigate easily, as I've been coming here for years for my traditional harvest of writing supplies. At the store entrance is a stack of bright red plastic shopping bins with metal handles. I pick one up and again become the woman with the basket. In the paper aisle I am confronted with a great diversity of species of paper—wide ruled and narrow, copier paper, stationery, spiral bound, loose-leaf—arrayed in clonal patches by brand and purpose. I see just what I want, my favorite legal pads, as yellow as a downy violet.

I stand before them trying to conjure the gathering mentality, to bring all the rules of the Honorable Harvest to bear, but I can't do it

without the bite of mockery. I try to sense the trees in that stack of paper and address my thoughts to them, but the taking of their lives is so far removed from this shelf that there is just a distant echo. I think about the harvesting method: were they clear-cut? I think about the stink of the paper mill, the effluent, the dioxin. Fortunately, there is a stack labeled “Recycled,” so I choose those, paying a little more for the privilege. I pause and consider whether the yellow dyed may be worse than the white bleached. I have my suspicions, but I choose the yellow as I always do. It looks so nice with green or purple ink, like a garden.

I wander next to the pen aisle, or as they call it, “writing instruments.” The choices here are even more numerous and I have no idea at all where they came from, except some petrochemical synthesis. How can I bring honor to this purchase, use my dollars as the currency of honor when the lives behind the product are invisible? I stand there so long that an “associate” comes to ask if I’m looking for anything in particular. I guess I look like a shoplifter planning a heist of “writing instruments” with my little red basket. I’d like to ask him, “Where did these things come from? What are they made of and which one was made with a technology that inflicts minimal damage on the earth? Can I buy pens with the same mentality with which a person digs wild leeks?” But I suspect he would call security on the little earpiece attached to his jaunty store cap, so I just choose my favorite, for the feel of the nib against the paper and the purple and green ink. At the checkout I engage in reciprocity, tendering my credit card in return for writing supplies. Both the clerk and I say thank you, but not to the trees.

I’m trying hard to make this work, but what I feel in the woods, the pulsing animacy, is simply not here. I realize why the tenets of reciprocity don’t work here, why this glittering labyrinth seems to make a mockery of the Honorable Harvest. It’s so obvious, but I didn’t see it, so intent was I on searching for the lives behind the products. I couldn’t find them because the lives aren’t here. Everything for sale here is dead.

I get a cup of coffee and sit on a bench to watch the scene unfold, gathering evidence as best I can, notebook open in my lap. Sullen teenagers wanting to buy their selfhood and sad-looking old men sitting

alone at the food court. Even the plants are plastic. I've never been shopping like this before, with such intentional awareness of what goes on here. I suppose I've blocked it out in my usual hurry to get in, make my purchase, and get out. But now I scan the landscape with all senses heightened. Open to the T-shirts, the plastic earrings, and the iPods. Open to shoes that hurt, delusions that hurt, and mountains of needless stuff that hurts the chances that my grandchildren will have a good green earth to care for. It hurts me even to bring the ideas of the Honorable Harvest here; I feel protective of them. I want to cup them like a small warm animal in my hands and shelter them from the onslaught of their antithesis. But I know they are stronger than this.

It's not the Honorable Harvest that is the aberration, though—it is this marketplace. As leeks cannot survive in a cutover forest, the Honorable Harvest cannot survive in this habitat. We have constructed an artifice, a Potemkin village of an ecosystem where we perpetrate the illusion that the things we consume have just fallen off the back of Santa's sleigh, not been ripped from the earth. The illusion enables us to imagine that the only choices we have are between brands.

Back home I wash away the last bits of black soil and trim the long white roots. One big handful of leeks we set aside, unwashed. The girls chop the slender bulbs and the leaves, and they all go into my favorite cast iron skillet with way more butter than a person should probably have. The aroma of sautéed leeks fills the kitchen. Just breathing it in is good medicine. The sharp pungency dissipates quickly and the fragrance that lingers is deep and savory, with a hint of leaf mold and rainwater. Potato leek soup, wild leek risotto, or just a bowl of leeks are nourishment for body and soul. When my daughters leave on Sunday, I'm happy to know that something of their childhood woods will travel with them.

After dinner, I take the basket of unwashed leeks to the tiny patch of forest above my pond to plant them. The harvesting process now unfolds in reverse. I ask permission to bring them here, to open the

earth for their arrival. I search out the rich moist hollows and tuck them into the soil, emptying my basket instead of filling it. These woods are second or third growth and sadly lost their leeks long ago. It turns out that when forests around here grow back after agricultural clearing, the trees come back readily but the understory plants do not.

From a distance the new postagricultural woods look healthy; the trees came back thick and strong. But inside something is missing. The April showers do not bring May flowers. No trillium, no may-apple, no bloodroot. Even after a century of regrowth, the postfarming forests are impoverished, while the untilled forests just across the wall are an explosion of blossoms. The medicines are missing, for reasons ecologists do not yet understand. It might be microhabitat, it might be dispersal, but it is clear that the original habitat for these old medicines was obliterated in a cascade of unintended consequences as the land was turned to corn. The land is no longer hospitable for the medicines and we don't know why.

The Skywoman woods across the valley have never been plowed, so they still have their full glory, but most other woods are missing their forest floor. Leek-laden woods have become a rarity. Left to time and chance alone, my cutover woods would probably never recover their leeks or their trillium. The way I see it, it's up to me to carry them over the wall. Over the years, this replanting on my hillside has yielded small patches of vibrant green in April and nurtures the hope that the leeks can return to their homelands and that when I'm an old lady I'll have a celebratory spring supper close at hand. They give to me, I give to them. Reciprocity is an investment in abundance for both the eater and the eaten.

We need the Honorable Harvest today. But like the leeks and the marten, it is an endangered species that arose in another landscape, another time, from a legacy of traditional knowledge. That ethic of reciprocity was cleared away along with the forests, the beauty of justice traded away for more stuff. We've created a cultural and economic landscape that is hospitable to the growth of neither leeks nor honor. If the earth is nothing more than inanimate matter, if lives are nothing

more than commodities, then the way of the Honorable Harvest, too, is dead. But when you stand in the stirring spring woods, you know otherwise.

It is an animate earth that we hear calling to us to feed the martens and kiss the rice. Wild leeks and wild ideas are in jeopardy. We have to transplant them both and nurture their return to the lands of their birth. We have to carry them across the wall, restoring the Honorable Harvest, bringing back the medicine.

EPILOGUE: RETURNING THE GIFT

Red over green, raspberries bead the thicket on a summer afternoon. The blue jay picking on the other side of this patch has a beak as red-stained as my fingers, which go to my mouth as often as to the bowl. I reach under the brambles for a dangling cluster and there in the dappled shade is a grinning turtle, shin deep in fallen fruit, stretching his neck up for more. I'll let his berries be. The earth has plenty and offers us abundance, spreading her gifts over the green: strawberries, raspberries, blueberries, cherries, currants—that we might fill our bowls. *Niibin*, we call summer in Potawatomi, “the time of plenty,” and also time for our tribal gathering, for powwows and ceremony.

Red over green, the blankets spread on the grass beneath the arbor are piled high with gifts. Basketballs and furled umbrellas, peyote-stitched key chains and Ziploc bags of wild rice. Everybody lines up to choose a gift while the hosts stand by, beaming. The teenagers are dispatched to carry choice items to elders seated in the circle, too frail to navigate the crowd. *Megwech, megwech*—the thank yous circle among us. Ahead of me a toddler, besotted with abundance, grabs a whole armload. Her mother bends and whispers in her ear. She stands indecisive for a moment and lays it all back down, save a neon-yellow squirt gun.

And then we dance. The drum begins the giveaway song and everyone joins the circle in regalia of swaying fringe, nodding feathers, rainbow shawls, T-shirts, and jeans. The ground resonates with the fall of moccasined feet. Each time the song circles around to the honor beats, we dance in place and raise the gifts above our heads, waving

necklaces, baskets, and stuffed animals, whooping to honor the gifts and the givers. Amid the laughter and the singing, everyone belongs.

This is our traditional giveaway, the *minidewak*, an old ceremony well loved by our people and a frequent feature of powwows. In the outside world, people who are celebrating life events can look forward to receiving presents in their honor. In the Potawatomi way, this expectation is turned upside down. It is the honored one who *gives* the gifts, who piles the blanket high to share good fortune with everyone in the circle.

Often, if the giveaway is small and personal, every gift will be handmade. Sometimes a whole community might work all year long to fashion the presents for guests they do not even know. For a big intertribal gathering with hundreds of people, the blanket is likely to be a blue plastic tarp strewn with gleanings from the discount bins at Walmart. No matter what the gift is, a black ash basket or a pot holder, the sentiment is the same. The ceremonial giveaway is an echo of our oldest teachings.

Generosity is simultaneously a moral and a material imperative, especially among people who live close to the land and know its waves of plenty and scarcity. Where the well-being of one is linked to the well-being of all. Wealth among traditional people is measured by having enough to give away. Hoarding the gift, we become constipated with wealth, bloated with possessions, too heavy to join the dance.

Sometimes there's someone, maybe even a whole family, who doesn't understand and takes too much. They heap up their acquisitions beside their lawn chairs. Maybe they need it. Maybe not. They don't dance, but sit alone, guarding their stuff.

In a culture of gratitude, everyone knows that gifts will follow the circle of reciprocity and flow back to you again. This time you give and next time you receive. Both the honor of giving and the humility of receiving are necessary halves of the equation. The grass in the ring is trodden down in a path from gratitude to reciprocity. We dance in a circle, not in a line.

After the dance, a little boy in a grass dance outfit tosses down his

new toy truck, already tired of it. His dad makes him pick it up and then sits him down. A gift is different from something you buy, possessed of meaning outside its material boundaries. You never dishonor the gift. A gift asks something of you. To take care of it. And something more.

I don't know the origin of the giveaway, but I think that we learned it from watching the plants, especially the berries who offer up their gifts all wrapped in red and blue. We may forget the teacher, but our language remembers: our word for the giveaway, *minidewak*, means "they give from the heart." At the word's center lives the word *min*. *Min* is a root word for *gift*, but it is also the word for *berry*. In the poetry of our language, might speaking of *minidewak* remind us to be as the berries?

The berries are always present at our ceremonies. They join us in a wooden bowl. One big bowl and one big spoon, which are passed around the circle, so that each person can taste the sweetness, remember the gifts, and say thank you. They carry the lesson, passed to us by our ancestors, that the generosity of the land comes to us as one bowl, one spoon. We are all fed from the same bowl that Mother Earth has filled for us. It's not just about the berries, but also about the bowl. The gifts of the earth are to be shared, but gifts are not limitless. The generosity of the earth is not an invitation to take it all. Every bowl has a bottom. When it's empty, it's empty. And there is but one spoon, the same size for everyone.

How do we refill the empty bowl? Is gratitude alone enough? Berries teach us otherwise. When berries spread out their giveaway blanket, offering their sweetness to birds and bears and boys alike, the transaction does not end there. Something beyond gratitude is asked of us. The berries trust that we will uphold our end of the bargain and disperse their seeds to new places to grow, which is good for berries and for boys. They remind us that all flourishing is mutual. We need the berries and the berries need us. Their gifts multiply by our care for them, and dwindle from our neglect. We are bound in a covenant of reciprocity, a pact of mutual responsibility to sustain those who sustain us. And so the empty bowl is filled.

Somewhere along the line, though, people have abandoned berry

teachings. Instead of sowing richness, we diminish the possibilities for the future at every turn. But the uncertain path to the future could be illuminated by language. In Potawatomi, we speak of the land as *emingoyak*: that which has been given to us. In English, we speak of the land as “natural resources” or “ecosystem services,” as if the lives of other beings were our property. As if the earth were not a bowl of berries, but an open pit mine, and the spoon a gouging shovel.

Imagine that while our neighbors were holding a giveaway, someone broke into their home to take whatever he wanted. We would be outraged at the moral trespass. So it should be for the earth. The earth gives away for free the power of wind and sun and water, but instead we break open the earth to take fossil fuels. Had we taken only that which is given to us, had we reciprocated the gift, we would not have to fear our own atmosphere today.

We are all bound by a covenant of reciprocity: plant breath for animal breath, winter and summer, predator and prey, grass and fire, night and day, living and dying. Water knows this, clouds know this. Soil and rocks know they are dancing in a continuous giveaway of making, unmaking, and making again the earth.

Our elders say that ceremony is the way we can remember to remember. In the dance of the giveaway, remember that the earth is a gift that we must pass on, just as it came to us. When we forget, the dances we'll need will be for mourning. For the passing of polar bears, the silence of cranes, for the death of rivers and the memory of snow.

When I close my eyes and wait for my heartbeat to match the drum, I envision people recognizing, for perhaps the first time, the dazzling gifts of the world, seeing them with new eyes, just as they teeter on the cusp of undoing. Maybe just in time. Or maybe too late. Spread on the grass, green over brown, they will honor at last the giveaway from Mother Earth. Blankets of moss, robes of feathers, baskets of corn, and vials of healing herbs. Silver salmon, agate beaches, sand dunes. Thunderheads and snowdrifts, cords of wood and herds of elk. Tulips. Potatoes. Luna moths and snow geese. And berries. More than anything, I want to hear a great song of thanks rise on the wind. I think that song might save us. And then, as the drum begins, we will

dance, wearing regalia in celebration of the living earth: a waving fringe of tallgrass prairie, a whirl of butterfly shawls, with nodding plumes of egrets, jeweled with the glitter of a phosphorescent wave. When the song pauses for the honor beats, we'll hold high our gifts and ululate their praises, a shining fish, a branch of blossoms, and a starlit night.

The moral covenant of reciprocity calls us to honor our responsibilities for all we have been given, for all that we have taken. It's our turn now, long overdue. Let us hold a giveaway for Mother Earth, spread our blankets out for her and pile them high with gifts of our own making. Imagine the books, the paintings, the poems, the clever machines, the compassionate acts, the transcendent ideas, the perfect tools. The fierce defense of all that has been given. Gifts of mind, hands, heart, voice, and vision all offered up on behalf of the earth. Whatever our gift, we are called to give it and to dance for the renewal of the world.

In return for the privilege of breath.

A NOTE ON THE TREATMENT OF PLANT NAMES

We accept with nary a thought that the names of people are capitalized. To write “george washington” would be to strip that man of his special status as a human. It would be laughable to write “Mosquito” if it were in reference to a flying insect, but acceptable if we were discussing a brand of boat. Capitalization conveys a certain distinction, the elevated position of humans and their creations in the hierarchy of beings. Biologists have widely adopted the convention of not capitalizing the common names of plants and animals unless they include the name of a human being or an official place name. Thus, the first blossoms of the spring woods are written as bloodroot and the pink star of a California woodland is Kellogg’s tiger lily. This seemingly trivial grammatical rulemaking in fact expresses deeply held assumptions about human exceptionalism, that we are somehow different and indeed better than the other species who surround us. Indigenous ways of understanding recognize the personhood of all beings as equally important, not in a hierarchy but a circle. So in this book as in my life, I break with those grammatical blinders to write freely of Maple, Heron, and Wally when I mean a person, human or not; and of maple, heron, and human when I mean a category or concept.

A NOTE ON THE TREATMENT OF INDIGENOUS LANGUAGE

The Potawatomi and Anishinaabe languages are a reflection of the land and the people. They are a living, oral tradition, which had not been written down in their long history until fairly recently. A number of writing

systems have emerged to try and capture the language in regularized orthography, but there is no firm agreement on the preeminence of any one among the many variants of a large and living language. Potawatomi elder, fluent speaker, and teacher Stewart King has kindly sorted through my rudimentary use of the language, confirming meanings and advising on consistency in spelling and usage. I am most appreciative for his guidance in my understanding of language and culture. The Fiero system's double vowel orthography for writing the language has been widely adopted by many Anishinaabe speakers. Most Potawatomi, however—known as the “vowel droppers”—do not use Fiero. With respect for speakers and teachers with these different perspectives, I have tried to use the words in the way that they were originally given to me.

A NOTE ON INDIGENOUS STORIES

I am a listener and have been listening to stories told around me for longer than I care to admit. I mean to honor my teachers by passing on the stories that they have passed on to me.

We are told that stories are living beings, they grow, they develop, they remember, they change not in their essence, but sometimes in their dress. They are shared and shaped by the land and the culture and the teller, so that one story may be told widely and differently. Sometimes only a fragment is shared, showing just one face of a many faceted story, depending on its purpose. So it is with the stories shared here.

Traditional stories are the collective treasures of a people and can't easily be attributed with a literature citation to an individual source. Many are not to be publicly shared and these I have not included, but many are freely disseminated so that they may do their work in the wider world. For these stories, which exist in many versions, I have chosen to cite a published source as a reference, while acknowledging that the version I share has been enriched by hearing it multiple times in different tellings. For some, I do not know of a published source for a story passed on in the oral tradition. *Chi megwech* to the storytellers.