debating what gifts they could offer in return? In learning reciprocity, the hands can lead the heart.

On the last night of the course, we decide to sleep in our wigwam, hauling our sleeping bags down the trail at dusk and laughing around the fire until late. Claudia says, "I'm sad to leave here tomorrow. I'm going to miss feeling so connected to the land when I'm not sleeping on cattails." It takes real effort to remember that it's not just in a wigwam that the earth gives us everything we need. The exchange of recognition, gratitude, and reciprocity for these gifts is just as important in a Brooklyn flat as under a birch bark roof.

When the students start to leave the fire circle with their flashlights in twos and threes to whisper, I sense a conspiracy. Before I know it they are lined up with makeshift song sheets like a choir in the firelight. "We have a little something for you," they say and start a marvelous anthem of their own creation, filled with crazy rhymes of spruce roots and hiking boots, human needs and marshy reeds, cattail torches on our porches. The song crescendos to a rousing chorus of "no matter where I roam, when I'm with plants I'll be at home." I couldn't imagine a more perfect gift.

With all of us packed into the wigwam like down caterpillars, the slow slide to sleep is punctuated by laughs and last scraps of conversation. Remembering the improbable rhyme of "ecotones and baked rhizomes," I start to giggle too, sending a ripple across the sleeping bags like a wave across a pond. As we eventually drift off, I feel us all held beneath the dome of our bark roof, an echo of the starry dome above. The quiet settles in until all I can hear is their breathing and the whisper of the cattail walls. I feel like a good mother.

When the sun pours in the eastern door, Natalie wakes first, tiptoes over the others, and steps outside. Through the slits in the cattails I watch as she raises her arms and speaks her thanks to the new day.

Burning Cascade Head

> "The dance of renewal, the dance that made the world, was always danced here at the edge of things, on the brink, on the foggy coast."
>
> —URSULA K. LE GUIN

Far out beyond the surf they felt it. Beyond the reach of any canoe, half a sea away, something stirred inside them, an ancient clock of bone and blood that said, "It's time." Silver-scaled body its own sort of compass needle spinning in the sea, the floating arrow turned toward home. From all directions they came, the sea a funnel of fish, narrowing their path as they gathered closer and closer, until their silver bodies lit up the water, redd-mates sent to sea, prodigal salmon coming home.

The coastline here is scalloped with countless coves, clothed in fog banks, and cut with rainforest rivers, an easy place to lose your way, where landmarks can vanish in the fog. The spruce are heavy on the shore, their black cloaks hiding signs of home. The elders speak of lost canoes that strayed in the wind and landed on a sand spit not their own. When the boats are too long gone, their families go down to the beach to light a blaze among the driftwood, a beacon to sing them home to safety. When the canoes finally approach, laden with food from the sea, the hunters are honored in dances and songs, their dangerous journey repaid by faces alight with gratitude.

And so it is too that the people make ready for the arrival of their brothers who bring food in the canoe of their bodies. The people watch and wait. The women sew one more row of dentalia shells upon their finest garments for the dance. They pile alder wood for the welcome feast and sharpen huckleberry skewers. While they mend nets, they practice the old songs. But still their brothers do not come. The people go down to the shore, looking out to sea for a sign. Perhaps they have forgotten. Perhaps they wander, lost at sea, uncertain of their welcome with those they left behind.

The rains are late, the water low, the forest trails turned dusty and dry and covered in a steady rain of yellow spruce needles. The prairies up on the headland are crisp and brown, without even fog to moisten them.

Far out, beyond the pounding surf, beyond the reach of canoes, in the inky darkness that swallows light, they move as one body, a school, turning neither east nor west until they know.

So he walks the path at nightfall with a bundle in his hand. Into a nest of cedar bark and twisted grass he lays the coal and feeds it with his breath. It dances and then subsides. Smoke pools darkly as the grasses melt to black and then erupt into flame, climbing one stem and then another. All around the meadow, others do the same, setting in the grass a crackling ring of fire that quickens and gathers, white smoke curling upward in the fading light, breathing into itself, panting across the slope until its convective gasp sets the night alight. A beacon to bring their brothers home.

They are burning the headland. Flames race on the wind until they are stopped by the wet green wall of the forest. Fourteen hundred feet above the surf it blazes, a tower of fire: yellow, orange, and red, a massive flare. The burning prairie billows smoke, roiling white with undersides of salmon pink in the darkness. They mean for it to say, "Come, come, flesh of my flesh. My brothers. Come back to the river where your lives began. We have made a welcome feast in your honor."

Out at sea, beyond where the canoes can go, there is a pinprick of light on a pitch-black coast, a match in the darkness, flickering, beckoning below the white plume that drifts down the coast to mingle with

the fog. A spark in the vastness. The time has come. As one body they turn to the east, toward the shore and the river of home. When they can smell the water of their natal stream, they pause in their journey and rest on the slackening tide. Above them all, on the headland, the sparkling tower of fire reflects on the water, kissing the reddened wave tops and glinting off silver scales.

By sunrise the headland is gray and white, as if dusted by an early snow. A cold drift of ash falls on the forest below and the wind carries the tang of burnt grass. But no one notices, for they are all standing along the river singing a welcome, a song of praise as the food swims up the river, fin to fin. The nets stay on the shore; the spears still hang in the houses. The hook-jawed leaders are allowed to pass, to guide the others and to carry the message to their upriver relatives that the people are grateful and full of respect.

The fish course by the camp in great throngs, unmolested as they make their way upstream. Only after four days of fish have moved safely by is the First Salmon taken by the most honored fisher and prepared with ritual care. It is carried to the feast in great ceremony on a cedar plank in a bed of ferns. And then they feast on the sacred foods—salmon, venison, roots, and berries—in sequence for their places in the watershed. They celebrate the water that connects them all in a ritual passing of the cup. They dance in long lines, singing thanks for all that is given. The salmon bones are placed back in the river, their heads facing upstream so that their spirits might follow the others. They are destined to die as we are all destined to die, but first they have bound themselves to life in an ancient agreement to pass it on, to pass it on. In so doing, the world itself is renewed.

Only then the nets are set out, the weirs are put in place, and the harvest begins. Everyone has a task. An elder counsels the young one with a spear, "Take only what you need and let the rest go by and the fish will last forever." When the drying racks are full with winter food, they simply stop fishing.

And so, at the time of dry grasses, the fall Chinook arrived in legendary numbers. The story is told that when Salmon first arrived he

was greeted on the shore by Skunk Cabbage, who had been keeping the people from starvation all those years. "Thank you, brother, for taking care of my people," said Salmon, and he gave Skunk Cabbage gifts—an elk hide blanket and a war club—and then set him in the soft, moist ground so he could rest.

The diversity of salmon in the river—Chinook, Chum, Pink and Coho—ensured that the people would not go hungry, likewise the forests. Swimming many miles inland, they brought a much-needed resource for the trees: nitrogen. The spent carcasses of spawned-out salmon, dragged into the woods by bears and eagles and people, fertilized the trees as well as Skunk Cabbage. Using stable isotope analysis, scientists traced the source of nitrogen in the wood of ancient forests all the way back to the ocean. Salmon fed everyone.

When spring returns, the headland becomes a beacon again, shining with the intense green light of new grass. The burnt and blackened soil heats up quickly and urges the shoots upward, fueled by the fertilizing ash, giving the elk and their calves a lush pasture in the midst of dark forests of Sitka spruce. As the season unfolds, the prairie is awash with wildflowers. The healers make the long climb to gather the medicines they need, which grow only here on the mountain they call "the place where the wind always blows."

The headland juts out from the shore and the sea curls around its base in white curls. It is a place for the long view. To the north, the rocky coast. To the east, ridge after ancient ridge of moss-draped rainforest. To the west, the unbroken sea. And to the south, the estuary. An enormous sand spit arcs across the mouth of the bay, enclosing it and forcing the river through a narrow path. All the forces that shape the meeting of land and sea are written there, in sand and water.

Overhead, Eagles, bringers of vision, soar on the thermals that rise off the head. This was sacred ground, reserved for seekers of a vision who would sacrifice by fasting alone for days in this place where the grasses give themselves to fire. They would sacrifice for the Salmon, for the People, to hear the Creator's voice, to dream.

Only fragments of the story of the head remain with us. The people

who know it were lost before their knowledge could be captured and the death was too thorough to have left many tellers behind. But the prairie kept the story of the ritual fires long after there were people here to speak of it.

A tsunami of disease swept the Oregon coast in the 1830s, the germs traveling faster than covered wagons could. Smallpox and measles came to the Native peoples, diseases for which they had no more resistance than did grass before a fire. By the time the squatters arrived around 1850, most of the villages were ghost towns. Settlers' diaries record their surprise at finding a densely forested place with a pasture all ready for their livestock, and they eagerly set their cows out to fatten on the native grasses. In the way of all cows, these no doubt followed the paths that already lay on the land, pressing them even more decisively into the soil. Their presence did some of the work of the lost fires by preventing encroachment by forest and fertilizing the grasses.

As more people arrived to take the remaining lands of the Nechesne, they wanted even more pasture for their Holsteins. Flat land is a hard thing to come by in these parts, so they cast a covetous eye on the salt marshes of the estuary.

Situated at the meeting point between ecosystems, with a mix of river, ocean, forest, soil, sand, and sunlight at this edge of all edges, estuaries can have the highest biodiversity and productivity of any wetland. They are a breeding ground for invertebrates of all sorts. The dense sponge of vegetation and sediment is riddled with channels of all sizes, matching the sizes of salmon that are coming and going through its network. The estuary is a nursery for salmon, from tiny fry just days out of the redd to fattening smolt adjusting to salt water. Herons, ducks, eagles, and shellfish could make a living there, but not cows—that sea of grasses was too wet. So they built dikes to keep the water out, engineering they called "reclaiming land from the sea," turning wetlands into pasture.

The diking changed the river from a capillary system to a single

straightened flow to hurry the river to the sea. It might have been good for cows, but it was disastrous for young salmon who were now unceremoniously flushed to the sea.

The transition to salt water is a major assault on the body chemistry of a salmon born in freshwater. One fish biologist likens it to the rigors of a chemotherapy transfusion. The fish need a gradual transition zone, a halfway house of sorts. The brackish water of estuaries, the wetland buffer between river and ocean, plays a critical role in salmon survival.

Drawn by the prospect of fortunes to be made from canneries, salmon fishing exploded. But there was no more honoring of the returning fish, no guarantee of safe passage upstream for the early arrivers. Adding insult to injury, construction of upstream dams created rivers of no return, and degradation by cattle grazing and industrial forestry reduced spawning to nil. The commodity mind-set drove fish that had fed the people for thousands of years close to extinction. To preserve the revenue stream, they built salmon hatcheries, turning out industrial fish. They thought they could make salmon without rivers.

From the sea the wild salmon watched for the blaze on the headland and saw nothing for years. But they have a covenant with the People and a promise to Skunk Cabbage to care for them, and so they came, but fewer and fewer every time. The ones that made it though came home to an empty house, dark and lonely. There were no songs or fern-decked tables. No light on the shore to say welcome back.

According to the laws of thermodynamics, everything has to go someplace. Where did the relationship of loving respect and mutual caregiving between people and fish go?

The path rises abruptly from the river in steps cut into the steep slope. My legs burn as they push up over roots of massive Sitka spruces. Moss, fern, and conifer repeat a pattern of feathery forms, a tessellation of green fronds block-printed on the walls of the forest, which draw close.

The branches brush my shoulder and compress my view to the

path and my feet. Walking this trail turns me inward, under the small dome of my own head, my busy mind clicking away over an interior landscape of lists and remembrances. I hear only the tread of my own feet, the swish of my rain pants, and my heartbeat until I arrive at a stream crossing where the water sings as it falls over the sheer drop, throwing up a fine mist. It opens my eyes to the forest: a winter wren chatters at me from the sword ferns; an orange-bellied newt crosses my path.

The spruce shade eventually gives way to dappled light as the trail ascends to enter a skirt of white-stemmed alder below the summit. I want to walk a little quicker, knowing what is ahead, but the transition is so seductive that I force myself to step slowly and savor the anticipation, taste the change in the air and the lift in the breeze. The very last alder leans away from the thread of the trail, as if to set me free.

Black against the golden grass and many inches deep into prairie earth, the trail follows the natural contours as if centuries of footfalls have preceded my own. It's just me, the grass, and the sky, and two bald eagles riding the thermals. Cresting the ridge releases me into an explosion of light and space and wind. My head catches fire at the sight. I cannot tell you more of that high and holy place. Words blow away. Even thought dissipates like wisps of cloud sailing up the headland. There is only being.

Before I knew this story, before the fire lit my dreams, I would have hiked here like everyone else, snapping photos at scenic viewpoints. I would have admired the great sickle curve of the yellow sand spit enclosing the bay and the lace-edge waves riding up the beach. I would crane around the knoll to see how the river cuts a sinuous silver line through the salt marsh far below, on its way from the dark line of the Coast Range. Like the others, I would edge toward the bluff and thrill to the vertiginous drop to the surf pounding the base of the headland a thousand feet below. Listen to the seals barking in the echo chamber of the cove. Watch the wind ripple the grass like a cougar pelt. And the sky going on and on. And the sea.

Before I knew the story, I would have written some field notes,

consulted my field guide about rare plants, and unpacked my lunch. I would not have talked on my cell phone, though, as the guy at the next overlook is doing.

Instead I just stand there, tears running down my cheeks in nameless emotion that tastes of joy and of grief. Joy for the being of the shimmering world and grief for what we have lost. The grasses remember the nights they were consumed by fire, lighting the way back with a conflagration of love between species. Who today even knows what that means? I drop to my knees in the grass and I can hear the sadness, as if the land itself was crying for its people: *Come home. Come home.*

There are often other walkers here. I suppose that's what it means when they put down the camera and stand on the headland, straining to hear above the wind with that wistful look, the gaze out to sea. They look like they're trying to remember what it would be like to love the world.

It is an odd dichotomy we have set for ourselves, between loving people and loving land. We know that loving a person has agency and power—we know it can change everything. Yet we act as if loving the land is an internal affair that has no energy outside the confines of our head and heart. On the high prairie at Cascade Head another truth is revealed, the active force of love for land is made visible. Here the ritual burning of the headland cemented the people's connection to salmon, to each other, and to the spirit world, but it also created biodiversity. The ceremonial fires converted forests to fingers of seaside prairie, islands of open habitat in a matrix of fog-dark trees. Burning created the headland meadows that are home to fire-dependent species that occur nowhere else on earth.

Likewise, the First Salmon Ceremony, in all its beauty, reverberates through all the domes of the world. The feasts of love and gratitude were not just internal emotional expressions but actually aided the upstream passage of the fish by releasing them from predation for

a critical time. Laying salmon bones back in the streams returned nutrients to the system. These are ceremonies of practical reverence.

The burning beacon is a beautiful poem, but it is a poem written physically, deeply on the land.

People loved the salmon the way fire loves grass
and the blaze loves the darkness of the sea.

Today we only write it on postcards ("Terrific view from Cascade Head—wish you were here") and grocery lists ("Pick up salmon, 1½ pounds").

Ceremony focuses attention so that attention becomes intention. If you stand together and profess a thing before your community, it holds you accountable.

Ceremonies transcend the boundaries of the individual and resonate beyond the human realm. These acts of reverence are powerfully pragmatic. These are ceremonies that magnify life.

In many indigenous communities, the hems of our ceremonial robes have been unraveled by time and history, but the fabric remains strong. In the dominant society, though, ceremony seems to have withered away. I suppose there are many reasons for that: the frenetic pace of life, dissolution of community, the sense that ceremony is an artifact of organized religion forced upon participants rather than a celebration joyfully chosen.

The ceremonies that persist—birthdays, weddings, funerals—focus only on ourselves, marking rites of personal transition. Perhaps the most universal is high school graduation. I love graduation in my small town, with the whole community dressed up and filling the auditorium on a June evening, whether you have a kid graduating or not. There's a sense of community in the shared emotions. Pride for the young people walking across the stage. Relief for some. A good dose of nostalgia and remembrance. We celebrate those beautiful young

people who have enriched our lives; we honor their hard work and accomplishment against all odds. We tell them that they are our hope for the future. We encourage them to go off into the world and pray that they will come back home. We applaud for them. They applaud for us. Everyone cries a little. And then the parties begin.

And, at least in our little town, we know it's not an empty ritual. The ceremony has power. Our collective good wishes really do fuel the confidence and strength of young people about to leave home. The ceremony reminds them of where they come from and their responsibilities to the community that has supported them. We hope it inspires them. And the checks tucked into the graduation cards really do help them make their way in the world. These ceremonies too magnify life.

We know how to carry out this rite for each other and we do it well. But imagine standing by the river, flooded with those same feelings as the Salmon march into the auditorium of their estuary. Rise in their honor, thank them for all the ways they have enriched our lives, sing to honor their hard work and accomplishments against all odds, tell them they are our hope for the future, encourage them to go off into the world to grow, and pray that they will come home. Then the feasting begins. Can we extend our bonds of celebration and support from our own species to the others who need us?

Many indigenous traditions still recognize the place of ceremony and often focus their celebrations on other species and events in the cycle of the seasons. In a colonist society the ceremonies that endure are not about land; they're about family and culture, values that are transportable from the old country. Ceremonies for the land no doubt existed there, but it seems they did not survive emigration in any substantial way. I think there is wisdom in regenerating them here, as a means to form bonds with this land.

To have agency in the world, ceremonies should be reciprocal co-creations, organic in nature, in which the community creates ceremony and the ceremony creates communities. They should not be cultural appropriations from Native peoples. But generating new ceremony in today's world is hard to do. There are towns I know that hold apple

festivals and Moose Mania, but despite the wonderful food, they tend toward the commercial. Educational events like wildflower weekends and Christmas bird counts are all steps in the right direction, but they lack an active, reciprocal relationship with the more-than-human world.

I want to stand by the river in my finest dress. I want to sing, strong and hard, and stomp my feet with a hundred others so that the waters hum with our happiness. I want to dance for the renewal of the world.

On the banks of the Salmon River estuary today, people are again waiting by the stream, watching. Their faces are alight with anticipation and sometimes furrowed with concern. Instead of their finest clothes, they wear tall rubber boots and canvas vests. Some wade in with nets, while others tend buckets. From time to time they whoop and yell with delight at what they find. It's a First Salmon Ceremony of a different kind.

Beginning in 1976, the U.S. Forest Service and a host of partner organizations led by Oregon State University initiated a restoration project for the estuary. Their plan was to remove the dikes and dams and tidegates and once again let the tidal waters go where they were meant to go, to fulfill their purpose. Hoping that the land remembered how to be an estuary, the teams worked to dismantle the human structures, one by one.

The plan was guided by many cumulative lifetimes of ecological research, endless hours in the lab, scorching sunburns in the field, and shivering winter days of collecting data in the rain, as well as gorgeous summer days when new species miraculously returned. This is what we field biologists live for: the chance to be outside in the vital presence of other species, who are generally way more interesting than we are. We get to sit at their feet and listen. Potawatomi stories remember that all the plants and animals, including humans, used to speak the same language. We could share with one another what our lives were like. But that gift is gone and we are the poorer for it.

Because we can't speak the same language, our work as scientists

is to piece the story together as best we can. We can't ask the salmon directly what they need, so we ask them with experiments and listen carefully to their answers. We stay up half the night at the microscope looking at the annual rings in fish ear bones in order to know how the fish react to water temperature. So we can fix it. We run experiments on the effects of salinity on the growth of invasive grasses. So we can fix it. We measure and record and analyze in ways that might seem lifeless but to us are the conduits to understanding the inscrutable lives of species not our own. Doing science with awe and humility is a powerful act of reciprocity with the more-than-human world.

I've never met an ecologist who came to the field for the love of data or for the wonder of a p-value. These are just ways we have of crossing the species boundary, of slipping off our human skin and wearing fins or feathers or foliage, trying to know others as fully as we can. Science can be a way of forming intimacy and respect with other species that is rivaled only by the observations of traditional knowledge holders. It can be a path to kinship.

These too are my people. Heart-driven scientists whose notebooks, smudged with salt marsh mud and filled with columns of numbers, are love letters to salmon. In their own way, they are lighting a beacon for salmon, to call them back home.

When the dikes and dams were removed, the land did remember how to be a salt marsh. Water remembered how it was supposed to distribute itself through tiny drainage channels in the sediment. Insects remembered where they were supposed to lay their eggs. Today the natural curvaceous flow of the river has been restored. From the headland, the river looks like an etching of a gnarled old shore pine, on a background of waving sedges. Sandbars and deep pools swirl patterns of gold and blue. And in this reborn water world, young salmon rest in every curve. The only straight lines are the old boundaries of the dikes, a reminder of how the flow was interrupted and how it was renewed.

The First Salmon Ceremonies were not conducted for the people. They were for the Salmon themselves, and for all the glittering realms of Creation, for the renewal of the world. People understood that when

lives are given on their behalf they have received something precious. Ceremonies are a way to give something precious in return.

When the season turns and the grasses dry on the headland, preparations begin; they repair the nets and get their gear together. They come every year at this time. They gather together all the traditional foods, as there will be many mouths to feed on the crew. The data recorders are all calibrated and ready. With waders and boats, the biologists are on the river to dip nets into the restored channels of the estuary, to take its pulse. They come now every day to check, go down to the shore and gaze out to sea. And still the salmon do not come. So the waiting scientists roll out their sleeping bags and turn off the lab equipment. All but one. A single microscope light is left on.

Out beyond the surf they gather, tasting the waters of home. They see it against the dark of the headland. Someone has left a light on, blazing a tiny beacon into the night, calling the salmon back home.