

## SENSING RADIATION

by

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My world is mapped by Hanford. Its nuclear topography runs along the Columbia River where I was born—reactors, cooling towers as tall as grain elevators, laboratories, electric substations, pumps, tanks, concrete, steel, and hundreds of miles of fencing. In the heat of war and the race for weapons, Hanford grew from a farm town to a nuclear reservation in little more than a year. Hanford's first reactor was completed in September 1944; its first plutonium was produced within six weeks, then refined and shipped to Los Alamos for the Trinity Bomb Test. More plutonium from Hanford went into the Fat Boy atomic bomb that fell on Nagasaki. That was during the hot war. When Hanford saved the day.

Then came the Cold War. By my birth Hanford was etched deep into our map. Reactors ran in the background of our lives like eternal engines, producing power—and plutonium. It was the local factory, where every dad worked.

I live in Seattle now, separated from Hanford by the Cascade Mountains; by opposing forces of geology, climate, politics; and by two hundred miles. In October comes my birthday. In October 1984 came my dad's cancer diagnosis. That October we were put on notice, called home. Each October since, instinct calls me to where my world began.

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It is October. I leave Seattle and drive east, past Issaquah, into the foothills, and rise to the summit at Snoqualmie. Vine maples—veins of gold—light up the mountainsides. Against the dark forest of Douglas firs the maples signal their mutable state. I am a pilgrim, a seeker, a

prodigal daughter, drawn across the mountains, drawn to the desert and its river, drawn by power.

Radiation lives east of the mountains. Like tea stains long steeped into the teapot's craquelure, radiation seeps through cracks in the dry land along the Columbia River. Radiation lives out its half-lives—many multiples of our whole lives—in the expanse of land that is Hanford. There, below ground, radiation is contained in tanks, barrels, ponds, pits, and pipes that—following immutable laws of entropy and gravity—leak into the water table and weep into the mighty river.

Now, we speak of radiation. Sometimes. At least west of the mountains we do. People learn where I am from. They crack their jokes about glow-in-the-dark rabbits and double-tailed rattlers. Or whisper their shuddering fear. *Hanford is creepy*, they say. I nod and change the subject.

Then, we didn't speak of radiation. In those days everyone's dad worked at Hanford, doing science that was nuclear, pure, patriotic, and secret. Once trained to secrecy, men held to it. My father was one of these men. A chemical engineer. Dad wore his security badge clipped to his shirt pocket, coat collar, or jacket lapel, and he daily passed through the gate to work at Hanford and daily returned home. He didn't talk about his work; that was just how it was.

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You can't see radiation. Yet you sense its dance, a jittery zigzag across the sagebrush, tumbleweeds, yarrow, like a visual migraine. It ripples through cheat grass on Rattlesnake Mountain. It blows along the Horse Heaven Hills, carrying its dust, mixing that dust with all that has become dust, with all that will become dust. A thin, dry layer coats cars and houses, coats the

leaves of cottonwood and sycamore trees, even throats. You might try to catch it straight on, but radiation remains in the periphery, like distant lightning that disappears before you can turn your head. Or is it always there, deep within the rose-red sky that stretches out beyond evening, beyond memory and gravity and time?

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I knew what kids in the 1950s knew about Hanford: that nuclear power is good, that it can heat and light the country with its brilliant, clean energy; that it can extend the shelf life of foods; that it can sterilize insects that kill cattle or destroy crops; that it can treat cancer. Particularly, we knew that it can make plutonium for a nuclear bomb, that it already had. That's why the Russians pointed missiles at us. In summer our laziness stretched out in the green depth of our backyard. We looked up from our place on the grass at Dad's peonies, snapdragons, zinnias, and mums, and we grew well-tended theories about why we would be spared or exploded in a blast.

The Kessingers had a bomb shelter. Right across the street. I saw it once, a concrete room below their basement, with shelves of crackers, canned tuna, Spam, vienna sausages, mandarin oranges, a transistor radio, flashlights, batteries, a Bible, and gallons of water. I savored the idea of a secret room, a place below ground, below the usual rules. In a bomb shelter you could hide from tricky new math, dirty dishes, wrinkled blouses, and scratchy brush rollers that shaped your hair into a perfect tomorrow. No one cared what you looked like in a bomb shelter. Everyone would be your friend if the Russians attacked. Miss Bomb Shelter would always take the crown.

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You can't taste radiation. You might feel a tingle on your tongue that makes you wonder what diet soda could have left this metallic residue, something far down the periodic chart of chemical elements. You sense an imaginary lingering on your tongue, palate, and throat. You can't taste radiation in the milk of cows who have eaten grass that grows downwind of Hanford, grass irrigated by the river. You wonder whether everything tastes of radiation, or nothing does.

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The Columbia River was our source—we drank it; swam along its shores; piped it to our homes, gardens, farms—and it was also Hanford's source. River water was pumped to Hanford to cool the reactors, and then it was returned to the river. Catch and release. The same river water, equal in chemical elements, yet slightly altered in atomic mass.

The river gave us power. Nuclear energy—which required the river—also gave us power. General Electric took over Hanford. By avoiding accidents at work, Dad filled our kitchen with all-electric safety prizes: a percolator, popcorn popper, can opener, waffle iron, and toaster. Our house blazed with electricity.

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You can't smell radiation. It may tickle your nose, make you long to sneeze, or leave you suspended in fuzz, your nostril hairs dusty. You may feel the whooshing, nasal zing of ozone rushing through the river gorge. Or molten metal, under the sear heat of the welding torch. Or the hot, charged air of the turbine room under McNary Dam, which restrains the river. Or an empty pan cooking itself on the stove. Parched. Baked. Scorched.

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My father's cancer may have always been in his body, a genetic code waiting to be dispatched, no matter where he lived or worked. It may have had nothing to do with Hanford. Cancers loosely linked to radiation are of the breast, bladder, colon, liver, lung, esophagus, ovaries, stomach, and the marrow. My father's cancer was of the brain.

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You can't hear radiation. No cicada drone, no high-string zing. It's not the zap of mosquitoes struck dead by the very electricity that attracted them. It is not the low hum of X-ray machines that clean your bones and teeth of flesh, reveal your dry skeletal splendor or your splits, cracks, fractures, fissures. Below the range of your hearing, radiation whispers into the soil, rustles through the water table, and sighs into the river.

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Radiation treated my father's cancer. The technician, a slight, soft-voiced man, marked Dad's head with an X that crossed from sun-browned skin to the white of fresh-shaved scalp, just there, at the temple. Behind glass, we watched. The machine's snout pointed at the exact center of the X. It buzzed. A few seconds. Dad showed no fear. He understood completely the power of nuclear medicine, knew its making, knew its capability. He knew the bargain he had struck.

We brought my father home, to the extra bedroom downstairs, to a rented hospital bed with an eggshell foam mattress. We brought home a swing-armed tray, IV stand, bags, briefs, wipes, swabs, charts, clipboard, mouth sponges, medicine, syringes, and oranges for our practice injections.

Dad's eyes relaxed at home, his skin became golden, clear, almost holy, in our house on Metaline Street, above the irrigation canal, above the highway, above the Columbia River.

Things sounded right: the click in the walls as the plaster-embedded heat coils warmed the house, our kitchen voices mingled, our footsteps across the linoleum floors of the upstairs bedrooms, the cry of the bathtub faucet when we turned it off. Things smelled right too: cocoa mixed with coffee, creamed corn, chicken pie, chili. This was purchased time. We lived in it, and we noted our breath, our steps, our heartbeats.

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You can't touch radiation. You can't reach out and lift it, feel its heft, or test its strength. You can't even be sure that radiation touches you, makes the hairs on your neck rise or your skin go to goose flesh. You can't know if it enters your body, lodges in your temple, mandible, clavicle. You touch these points down either side of your face, then place your fingers at your thyroid. You can't be sure you feel anything, though later your skin might burn or itch.

You long to wrestle with radiation. Your hands reach out to squeeze its sinewy neck. But it slides from your grasp, leaving you with doubts about yourself. Radiation—like an unseen lover—fingers your DNA strands, loosens their tight braids, or burrows down into your marrow and leaves you spent.

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Dad died on December 28, 1984: three days after Christmas and three days before New Year's Eve and twenty-five days after his birthday, fifty-nine years after his birth, and ninety days after we knew he had cancer. As I write these numbers, I want to check myself. How could the cancer have been so short? Was it a blessing it was so short? How could radiation have bought us so little? And so much, those stretched-out days that dangled over us, like a mobile

over a baby's crib? How could we be left with so little? And so much? When would we stop counting days and sleep at long last? Or does it all count, even sleep?

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I drive down the east slope of the Cascade Mountains at speeds I would never reach on the west side. The reckless, seductive power pulls me on to a place I haven't lived in in decades. Dry air, brown earth, bare sun. Exposed. I meet up with the Columbia River and follow it from Vantage to Wanapum, to Priest Rapids. Then, Hanford is on my left. For miles, from Vernita to Horn Rapids, Hanford is just through chain-link fence. It is the same open desert as on my right, but with cooling towers in the distance.

Radiation is in all my senses. I am back to where I came from, a strong place where power is birthed, generated, fissioned. The tingle is dry, pure, and, in its way, beautiful. It caresses my skin like fine powder. Familiarity settles on me like a cloak of feathers: magpie, meadowlark, red-tailed hawk. Desert animals thrive. And people. My mother. I curve around Richland, where I was born. I cross the Yakima River as it enters the Columbia. Our majestic river widens, welcomes, swells. Then it rolls on. Water pulls downriver. Home.

THE END