

ALEINA GRACE EDWARDS

Along a Transform Fault

On the last page of the scrapbook my mother made to document my first year of life, there is a list. Cream cardstock. Scalloped edges. Fat cherubs and pink ribbons collide at the margins, swirling around the details of ten events which occurred across human history on the 24th day of August.

The facts are both wide-ranging and specific: *On this day in 1891, Thomas Edison patented the first motion-picture camera; In 1456, the first printing of the Gutenberg Bible was completed; In 79 AD, Mount Vesuvius erupted, burying the city of Pompeii and neighboring Herculaneum.*

The list reads like a personal seismograph, record of the tremors that preceded me. Film makes sense: I grew up in Los Angeles with a father in the entertainment business; I love movies. The Gutenberg Bible—I'm a writer.

Then there's Mount Vesuvius. The scrapbook doesn't elaborate, but, ironically or appropriately, the eruption occurred just one day after the Roman feast of Volcanalia, a harvest celebration honoring Vulcan, the god of fire. The area around the volcano was populous, full of manufacturers and merchants and farmers who never realized that the black earth underfoot was so rich because it was actually layers of ancient ash. Before Mount Vesuvius erupted on August 24th, there were some 20,000 residents; after the eruption, the remains of 2,000 men, women, and children were found in Pompeii. Ten percent of the population—gone.

Today, nearly a million people live in the “death zones” near Mount Vesuvius. It's still active. The last eruption was in 1944. Apparently another big one is expected soon.

“We're due for the big quake any day now,” people would say in line at the grocery store, as if we were just talking about some rain headed our way. The cashier might smile, hand my mother change, me a red balloon. I would smile back big with my few adult teeth, unshaken by the conversation.

We learned about earthquakes young in Southern California. I was born six months after the Northridge quake struck the San Fernando Valley, killing at least fifty people, injuring over 8,000, and inflicting billions of dollars in property damage. I was in utero when it happened; maybe I felt it through my mother's body. I can't be sure if my oldest memories of earthquakes—my heavy dresser moving across the creaky wooden floors of my bedroom, the paintings shaking against the wall, the way the mantle in the living room seemed to bend as though it were made of putty—are real or imagined.

They're still saying it. All of California is vulnerable to seismic activity along the tectonic boundary between the Pacific and the North American Plates. It's a transform boundary, a

place where two pieces of Earth's crust strike against each other as they move in opposite directions. This combination of stress and divergence creates a fracture zone—a fault.

There are so many cracks under LA. The Santa Monica fault runs right under Rodeo Drive and cuts through the entire west side of town, stretching like a misshapen hand to touch Century City and Westwood (where our mall, the one with everything, was), Brentwood (our church), Santa Monica (our home), and the Pacific Palisades (our elementary school and most of our friends).

We kept our earthquake kits in the garage, which came in buckets that doubled as toilets. They had emergency blankets, emergency batteries, emergency food bars that were supposed to last for years. At school, we rehearsed earthquakes every few months. The fire alarms would ring and we would abandon our lessons and crawl under our desks, backs hunched and heads bowed away from the windows. Drop, cover, hold. I knew the desk would protect me if something fell from above—books from the shelves, or the big clock on the wall between the windows. But earthquakes begin under us, and we had our faces pressed to the floor for five long minutes.

The Big One didn't come while I was growing up, but fires burned across the hillsides and school was canceled because the sky was orange and thick with ash. My sister had an asthma attack from the smoke and spent hours at home on the couch with her face strapped into a nebulizer that looked like a fish's head. My mother took her to the doctor, eight-year-old me in tow. The topography of her lungs was the problem. The airways were inflamed, narrow. No safe passage.

At ten, I was diagnosed with scoliosis, a spontaneous spine deformity without specific cause. Heavy rain came and washed the charred mountainsides away, covering the Pacific Coast Highway in thick mud. No one could drive south from Malibu.

Parts of PCH crumbled and sank into the ocean. My vertebrae kept moving. My dad lost his job in 2008, and worked five part-time gigs in 2009 to cobble together enough money to support our family and get good health coverage. My spinal fusion, now scheduled for the summer of 2010, had a \$100,000 price tag. My parents talked about leaving LA, moving to Texas. Nothing felt sacred, or stable. The very earth under our feet was dissolving, and my body cost more money than many people ever see.

Recently I read that tectonic plates move about as fast as a fingernail grows. The plates have been moving like this for more than three billion years, slow ruptures across renaissances and revolutions. Most of the time, the movement is undetectable without the right equipment. I look at the nail on my left pointer finger, capped with a white crescent: the *free edge*, it's called. You don't feel a fingernail growing, but after a week or so, you notice the difference. Fingernail time is something I can understand.

When my spine started bending, it didn't hurt. I couldn't feel its movement—just some tension in my upper back and a stiff neck when I sat too long. For a while, X-rays were the only way to see what was happening. The back brace I wore for two years made the problem more obvious, and mortified me as a twelve- and thirteen-year-old girl. It hurt, too. Two years of breathlessness and aching ribs and peeling sweaty undershirts off tender skin. Two years in and out of exam rooms, waiting for more measurements and better news.

“Isn't it incredible that we're right here, right at the edge of the continent?” my mother used to muse on our drive to school in the Palisades. She is originally from Texas, and a decade in Los Angeles hadn't dampened the impact of the cliffs along the Pacific.

Yes, I thought, imagining our car on a map, crawling up the western edge of North America. But I also began to imagine our car careening off the cliff as we drove, tumbling onto the rocks waiting below, crashing into the sea. Maybe we would survive the fall. Maybe we would be able to unbuckle, open the doors, and get out. Then I imagined the cliffs dropping right out from under us. We would never survive that.

In *Fire of Love*, Sara Dosa's 2022 documentary about volcanologists Katia and Maurice Krafft, we learn how the story ends well before the final credits roll: Katia and Maurice are eviscerated in a pyroclastic flow. You can't see their bodies, but there's a shot of a fast-moving grey cloud enveloping the side of the volcano where they stood.

"*Fire of Love* tells the story of two French *lovers*," reads the film's description on Rotten Tomatoes; "Intrepid scientists and lovers Katia and Maurice Krafft died in a volcanic explosion," one review begins. The Kraffts were married for most of their twenty-something-year-long careers as the world's preeminent experts on volcanoes, so perhaps the word choice is less about the nature of their relationship to one another than it is to their work, to the world at large.

The Kraffts collected every type of rock they could find, and bought book after book on geology and natural chemicals. They wrote their own books. They filmed their expeditions and sold the footage to fund future expeditions. The Kraffts themselves shot most of the scenes in *Fire of Love*: perfect parabolas of fire shooting from the top of a volcano; haze rising off the surface of a grey-green acid lake; sensuous lava flows that beg to be touched.

"Normal mountains are really dead mountains compared to volcanoes. We've fallen in love with mountains alive," Maurice says.

Mountains alive is precisely what haunts me: the body of the world turning, changing; the ground we walk on opening up and swallowing me and everyone I love like a quick snack. If the mountains are alive, then the entire world, the entire universe, becomes unknowable.

Katia and Maurice eschewed the typical volcanic categorizations and discarded the accepted scientific nuances of eruption styles. They instead observed each mountain's personality, referring to a volcano as simply "red" or "grey." Reds are the more predictable of the two—you can dodge their bombs and sidestep their lava flows—but the grey are quite deadly. They blow fast-moving clouds of ash—those pyroclastic flows that envelop everything around. Mount Vesuvius is grey. So is Mount Unzen, the volcano in Japan that killed the Kraffts in 1991.

I used to say I wouldn't live in California again until after the Big One hit. Over drinks at parties, talking about the place I'm from, explaining why I wasn't there anymore, I would smile, laugh. Just waiting.

I didn't apply to any colleges on the West Coast. I went to school in Philadelphia. I took a job post-grad in Washington, DC. I moved to Cleveland to be with a boy I fell in love with, C, the first person who showed me what that could mean: fascination, infatuation, obsession, devotion, compromise, sacrifice. A kind of intensity I had only previously experienced as an internal dynamic, a relationship to myself, to my own neuroses and anxieties. Then here was its mirror, not an inward spiral but an explosion. He walked in an intentional, leonine way. He made intense eye contact when we spoke. He was smart, but he asked so many questions. He had a wide mouth with surprisingly full lips. He was born one year and one day before I was.

Summer of 2021, we put the dog and the cat in the car and drove west. We'd only visited Nevada once before deciding we

would move there. It was January then, the sky wide and cold. We were thirty minutes from the California border; we'd be close to some of my family again; there was no income tax. We found a house in an old neighborhood with massive pine trees and a herd of wild horses that grazed on the lawns. The backyard sprawled. You could see the snow-capped Sierra Nevada all around us. Reno was smaller than any place I'd ever lived, but we had so much space.

We all learn about Pangaea in science class at some point. The ancient supercontinent that broke into pieces so long ago, it seems more mythic than scientific, part of Earth's origin story. North and South America go one way, Europe and Africa the other. Continental drift.

We think this is it, this is the way it's supposed to be: summers are hot and winters are cold and harmony is here and now; change is destruction and loss. But the plates are always moving—they have been for billions of years. The faults are striking, sticking, slipping. Earth is constantly recycling itself, whether we take notice or not. Maybe the continents will return to each other one day, inch back together again bit by bit. Maybe they won't.

The fingernail is a good antidote to the daunting scope of geologic time. The fingernail is a panacea for my corporeal anxiety, the nagging concern that I am vulnerable to a dangerous kind of change, these seismic shifts. Adolescent scoliosis like mine is exacerbated by growth spurts, time stretching the body. By the time I turned fourteen, the two curves in my spine were already around forty degrees, the typical threshold for surgical intervention.

The growth of a fingernail is constant, but it's also normal, completely unremarkable. Scoliosis, even treated like mine, is a chronic condition. Its nature is to continue. Surgical fusions are

meant to halt the progression of the disease and prevent future organ damage by locking the spine in place; actual correction of the deformity is a secondary goal. Surgeons will never promise perfection. In my case, anyway, surgery effected “significant correction of scoliosis on all planes.”

There are complications, reverberations. I’ve been hospitalized in the years since my fusion, treated for the random nerve pain that ignites between my shoulder blades and burns across my back, around my ribs. Nothing is structurally wrong, doctors tell me each time. I’m wary of focusing on the fact that the pain can start at any time, worried I’m instigating or even preserving it somehow. Still, I keep returning to it, writing it, assessing it from different angles, wondering if there is anything I can do or say or think to change the nature of this landscape. I don’t know where obsession stops and fear begins, or if they have ever been distinct.

I loved C with the unilateral focus I give to everything, a kind of tunnel vision that makes me good at filing taxes and managing projects. Maybe that doesn’t sound like it translates to romantic love, but how else to describe the precision with which I wanted him? I was so certain. Certain convergent boundaries—the places where two different types of tectonic plates collide—become subduction zones. At these sites, where continental and oceanic plates collide, the oceanic plate always sinks because it’s made of denser material. The sinking slab bends at an angle of about thirty degrees as it descends. Sometimes it will tear, pieces of it breaking off and melting into the mantle. Recent research revealed that the slabs don’t actually vanish so much as weaken. They become soft and malleable, raw material. Subduction zones are the strongest engines of seismic activity.

I loved C with a finality that weighed on me. I dreamed regularly of losing him, of dating someone else whom I couldn’t stand. When I woke up in bed next to his sleeping body, loose

blonde curls across the pillow, I was relieved. Devastatingly lucky, really, like I had narrowly escaped disaster. It wasn't a real earthquake. It was only a dream.

This week I'm dividing our belongings. I said I wanted to move back to LA; he said he wanted to stay in Reno. He wanted to be alone. He didn't know what he wanted.

The Christmas ornaments are mine. I'll take the espresso machine—C likes gas station coffee best. Nearly all the books on the shelf he just built are mine. I decide to leave a pair of figure drawings I made hanging in the bedroom.

I have jewelry boxes stacked under the bed, museum maps and postcards in the desk drawer that always gets stuck when I pull it open. I have the charms from my favorite childhood necklaces tucked in a velvet pouch. I have years of birthday cards: from my parents, my friends, C. I have notes he scribbled for me on printer paper and napkins. I look at my wrists, each one wrapped with a bracelet he gave me. I feel a sensation that must be heartache, actual ache, like a high-riding nausea closer to my throat than my stomach. I take a deep breath and hold it, my body filling with stale air. I have never been good at letting go. I collect to keep, to keep for good.

When forest fires raged around Lake Tahoe the summer we moved to Nevada, I started making lists of what I'd take with me if we had to evacuate. For months, the cloying smoke was a threat and a prompt: what would you try to save? I packed some of my photos and trinkets into a filing box and stuffed it in the closet, soothed to know a few things from my past would be safe even if the worst happened. I'd be able to grab the box on the way to the car if I had to.

Now the box fits easily in my black SUV. I fold back the seats and arrange everything in neat rows: clothes, books, medical

files. It only takes an hour to load. I buckle the cat carrier in last, just before I'm ready to pull away.

I used to rank everything in my life on a pain scale with scoliosis—the brace, the surgery, the dysmorphia and dread—as the most extreme option, *worst pain imaginable*. But I understand better now why the Kraffts didn't bother with all the scientific classifications, with shapes and materials, cinder cones and composites. The physical similarities or differences between one volcano and another are not important. What matters about a volcano is the nature of its eruption. Will you see it coming, or will it surprise you by swallowing the sky?

In nine hours, I am home again. As soon as I descend into the city through the Grapevine, that stretch of the I-5 named for its winding shape, that's the word that comes to me. Los Angeles. I think of my landmarks: the La Brea Tar Pits and the Natural History Museum, where I began to learn about the world; the frozen yogurt shop my mother took me to after doctors' appointments; the Szechuan restaurant where my dad and I picked up wontons before our *Lord of the Rings* marathons. My parents separated when I was in college and neither lives here anymore. I'm surprised to realize that doesn't change how I feel about this place.

Two days after I return, an earthquake hits Malibu. The sliding closet doors in my apartment in Santa Monica rattle in their tracks. I wonder, as always, washed with sleep, if this is a dream. Then the aftershocks shake the room again and I sit up. My cat has never been in an earthquake before. I worry the painting of the Sierra, one of the last my paternal grandmother made before she died, will fall off the wall. I check my phone. 2 a.m. and I'm alone in the dark.

The Kraffts left hundreds of hours of footage behind. There are volcanoes and lava flows and gaseous lakes, the wild world raging around the two small human figures in the foreground.

Maurice was romantic when he talked about his work, but not sentimental. "It will kill me one day, but I don't care at all," he said.

"I would always like to be near craters, drunk with fire, gas, my face burned by the heat," Katia chimed.

The Kraffts were there for their own pleasure. They knew they had a one-way relationship with the landscape, that their affections were unrequited. They recognized and reveled in their little spot on the timeline of this world, lived happily inside the limits of their flesh.

In the film, there are many shots of Katia and Maurice clambering across volcanic fields and over jagged ridges in their silver suits. In one, they glitter in the foreground as a wall of lava rises behind them like a violent sea. They are so small, so vulnerable, so impossible there on that black earth. They are insane, audacious, reckless. They are in love. They are almost certainly going to die by fire. They are alive.