



Petrified Lightning

Albry Montalbano

I lie under a gray sun wearing stretch pants and a long sleeved T-shirt. The weather is windy and cold in March on the Fort Lauderdale beach. This is spring break 2001, sunny beaches or bust. Bust for the wind blowing sand that pelts against my face. The sun is an afterthought as I hide from the impact of the rough grains, but I'm determined to remain on the beach, to make it my section of sand. Hollowing out an indentation beneath

my blanket, I tuck myself away. I've traveled above six states at thirty thousand feet and survived the bucking of a turbulent plane to spread out on the beach and make it sink under my weight, yet after an hour the indent is not enough protection, and the wind pushes me poolside.

I return at night with stubbornness. It is not a romantic walk under the moon's glow. The ocean is illuminated only by streetlights from Las Olas Boulevard, and I'm alone. Anna and Jamie are napping at the Beachball Motel in preparation for my birthday party; at midnight, I turn twenty-one. A craving has formed in my belly, but not for margaritas, sex on the beaches, or woo woos. Instead I search for a quiet section of sand cluttered with the ocean's refuse, walking alone to discover the smells of low tide—broken horseshoe crabs, cracked mussel shells, forgotten sand shovels, bits of coral, driftwood. Instead I find couples fondling next to dilapidated sandcastles. There's a four-block stretch before the beach empties of people.

Tonight, the sea has not coughed up any of its possessions onto the sand. In combing the shoreline, I search for parts of the world made beautiful by trauma. Smooth pebbles, sculpted driftwood, and pearly shells torn from clams, mussels, horseshoes—all objects made round and clean by erosion. Once I saw a special treasure buried deep in a dune, transformed by the hand of force. Lightning, petrified, would come to remind me of the possibility of becoming enough, though I did not know it then. I will not find petrified lightning again so I search for a replacement. But tonight I do not find even that. I leave the cigarette butts, used condoms, and empty beer cans where they are for the sand zamboni that rakes the shit from the beach at night.

Before turning back, I stand above the dark line that marks the length of the ocean's tide. I don't care much for water, though. Some Pisces I make. But I like the water's sound. The crash onto the shoreline and then my thick thumping while I run away so the ocean cannot wrap around my feet. And from a distance, I watch the

white gurgle of the tide recede, sucking the sand as if the ocean is feeding on the grains.

Burying my feet where I stand until my toes scratch wet sand, the white hem of the waves creates suction between me and the beach. I'm fixed. Then I pull away hard and step out of myself, forcing the sand to take me in as it does the ocean, the treasures, and even lightning. But the tide pushes the ocean over my footprints, and they become a faint outline. The sand does not receive me in the same way it receives the other treasures.

I go home empty handed and complain that I found no shells, no driftwood—nothing, even though I wouldn't have taken them home anyway. Anna and Jamie comfort me by saying that we can buy shells, starfish, and coral at the local trinket store. But it's not treasure if you buy it. At sixteen, I learned that the parts of the world worth possessing are only special if left engraving the sand.

One part Silicon and two parts Oxygen, SiO_2 , makes

Crystalline Quartz—sand. These particles have a coat of silica gel. Feet-squeaking against the beach is the outer layer of silica rubbing together. Silica protects sand, enables it to be resilient. Often carried by migrating birds in the folds of their feathers, grains are found around the world where no other sand deposits exist.

Jockey Ridge State Park in North Carolina holds the largest natural sand dunes on the East Coast. The signs brag of heights of one hundred forty feet. I was sixteen when my family visited the dunes. We joined a tour and hiked to the top. Noelle and I raced through the sand as it drained from under our feet and cascaded toward the base. Our guide encouraged everyone, "Almost there, just another few steps 'round that bend." He pulled out a bandana and wiped his face.

Halfway up, my lungs caught fire. I complained about a burning sensation in my legs and a dizziness that overtook my head. "This better be worth it, Ma," I shouted. My mother couldn't answer; she was wheezing.

A thin line of tourists, one tour guide for every ten people, wrapped around the dune. There were sixteen tour guides. Everyone followed in a single line along the sandy trails. The sand was hard packed in places. Many used this hard sand as a platform to keep from sliding. My sister and I fell in line beside my parents, keeping time with their slowed pace. We watched teenage boys claw at the fine sand several feet beyond the border of the trail. They climbed the incline on all fours, pausing after each movement forward.

At the top, the tour guide pressed at his chest through the sweat-soaked shirt. My parents bent at the knees and hung their heads. "Look Ma, there's the ocean," I said. She nodded without noticing. The ocean encompassed three sides of the dune. To one short side, a small harbor town painted weather-beaten gray rested at the base while the far edge evaporated into the sea.

The guide spread his arms over the horizon, "Feel free to take it all in." He began to recount the history of the area, starting with settlement. The adults hunched

over and listened while their children strayed. Young kids rolled sideways down the slope to a small sandy platform below until their little bodies could propel them no further. "Ai, ai, ai," they screamed each time a turn tossed their face in the sand. Sputtering the grains from their mouths, they climbed back up to roll down again.

I focused on the sky. In the time it took to ascend the dune, day dissolved into dusk:blue sky, white clouds had become purple sky, pink clouds. I'd seen pastel watercolors of heaven hanging on walls in Sunday school classrooms but never had been a part of the paintings. Standing on the dune, my body arched into the purple dome of sky, and I closed my eyes to memorize the sensation. Wind made the sand swirl invisible until it dusted my face and hair.

Noelle knocked into my arm to get my attention, and I knocked her back. Our tour guide gathered the attention of the adults while we watched the boys throw sand at each other.

“These dunes cover four hundred twenty acres of North Carolina’s coastline and are continuously moving in a southwesterly direction due to the force of the wind,” the guide informed us.

My parents instructed Noelle and me to rejoin the group examining the dune. The guide kicked at a hole in the sand. “And here is one of nature’s mysteries. Take a look at this, everyone.” The crowd squatted around a hole no bigger than the width of a pencil. “Glass,” the guide said.

One man tried to shove his finger into the opening.

“Sir, careful, you might break it,” the tour guide cautioned.

I blinked. Again. And again. Distracted from heaven the dune’s details became visible. It started at my feet and rolled outwards to the edges of the dune’s extreme height. Everywhere I looked the sand was pockmarked with glass. “Lightning makes this,” the tour guide said. Then he used large words I didn’t listen to. I imagined lightning as blue veins crackling through the dune. With

so many glass punctures on the landscape, lightning must fall like rain.

My parents held each other in the flood of the setting sun. Noelle and I dug at the divots, competing to see who could extract the biggest piece of glass. We both lost. The glass disintegrated while we ferociously removed the sand around it. After each destroyed attempt, I moved onto the next divot until I stood, afraid of extinguishing my treasure.

On that dune in North Carolina, lightning left pale pink glass hollows. I wanted what was in the sand, thinking for a moment I could pull it from the dune. My fingers are long and thin but clumsy, and this form of lightning crumbled at my touch. In my mind, lightning was a force a gazillion times stronger than any zap from an electrical outlet. It halved trees in my backyard and struck golfers who held metal clubs, making their hair kinky. But in the sand, lightning transformed itself to delicate and brittle.

People once venerated lightning for its powerful force, never for delicacy. Romans believed that Fulgora, goddess of lightning, protected them from the destruction of thunderstorms. They called her name in worship, “If I receive your grace in times of storm, then I will dedicate my crops to you.” In medieval Europe, Christians retained Fulgora’s legacy. They rang church bells, believing the sound destroyed lightning bolts. *Fulgora Frango*, meaning, break the lightning, was imprinted on these metal bells. However, lightning still channeled down the length of the bell rope. In France from 1753 to 1786, one hundred three church bell ringers died while trying to dispel lightning.

I know the facts of lightning learned from sixth grade science class, Discovery Channel, weather books, my own backyard. Bolts of lightning that damage crops, incite fire, and destroy people are not punishments levied by Zeus. Lightning has no mythological properties. We’ve superceded these explanations of lightning’s occurrence and power. But part of me wishes science

hadn’t taken that away. Sometimes I need to believe that a magical element inhabits lightning—a creator’s name, an origin of power, a spell to summon or destroy the force. Lightning and its magnificent display are become barren of stories as science strips the skeleton clean of mystery.

Today, Fulgora is not invoked as our protectress. Evil spirits are not harbored in lightning. We know lightning is friction between unstable charges of positive and negative ions. Science has proven lightning travels at a speed of 90,000 miles a second, carrying a temperature of 50,000°F, and the sun burns at an average temperature of only 11,000°F.

According to these numbers it seems as if lightning is destined to tear through the sky, seek the best conductor, and dissipate, leaving damaging effects as evidence of its presence. I learned lightning as *breathhtaking, dangerous, seeks highest point, violent, metal, electrocution, when outside find a parked car for safety, do not shelter yourself beneath a tree*. Knowing

this, I could not imagine lightning thrusting into our world and creating such delicate beauty.

When it hits a person, lightning most often enters through the skull, marks its entrance, then searches for a way out, because our bodies cannot ground lightning. Lightning's force usually exits by way of blown off kneecaps, hands, or feet. The skin of these people is blackened. They are damaged, scarred by lightning, but still people. Our genetic composition does not allow for the possibility of humans to become different physical states of themselves, even with this intense energy.

Five years after North Carolina's dunes, I learned the word for the glass tubes in sand. They are scientifically known as fulgurites. Before then, I had consulted geology textbooks, physics textbooks, and chemistry dissertations with titles like *Siliciclastic Shelf Sedimentary, Sand and Sandstone, Ecology of Salt Marshes and Sand Dunes*. A librarian eventually typed "lightning, sand" into the Google Search Engine

on the Internet. Until this time the glass in the sand served as a frustrating memory of a treasure that I could find nowhere else, including in science. On top of the dune, I marveled at the pockmarked sand instead of paying attention. I focused on the sight of a thousand puncture marks rather than the scientific terminology and explanation describing their origin. For five years, I wished my mind would have taken it all in.

Fulgurites are genetically sand but have the length, width, and form of lightning. This combination gives fulgurites roots to power, resilience, energy, and matter, and I find myself creating myths of the fulgurite history, mystery, and meaning. Myths to move fulgurites from the depths of the dunes to fleshed discovery of importance. Myths to illustrate "why pay attention." Myths that use fulgurites to bridge frailty and strength, which is the human struggle of wanting to be everything at all times; my personal struggle as well.

Fulgurites are lightning in a different state, like water

in a freezer. They occur when lightning strikes the sand and melts the quartz. The process is instantaneous. As the sand, transformed to glass, cools, loose grains adhere to the fulgurite exterior. The melted quartz turns beige, charcoal, or sometimes a light pink, yellow or green, depending on the other minerals present. The fulgurite's glass interior has tiny air bubbles covering its smooth, pastel surface.

Every fulgurite is a hollow tube without a straight, even shape. Lightning's zigzag across the sky is the same pattern frozen in sand. Fulgurites stretch below the surface to depths of twenty to forty feet. The only fully intact excavated fulgurite is seventeen feet long. It bounces between museums, looking for a home with enough floor space.

In Germany, 1706, Pastor David Hermann made the first reported discovery of a fulgurite. Since then, the scientific and commercial nature of the fulgurite has been examined and exploited. Scientists record data—width of the fulgurite, conditions they occur

in, size, shape, color, and location. All this is studied to determine the effects of underground lightning on below surface power lines. In laboratories around the world, scientists replicate conditions necessary to create fulgurites. They call their manmade mystery Cultured Lightning Fulgurites.

Fulgurites, natural or cultured, are available for purchase to the public. They range in price from five dollars to above eight thousand dollars, depending on size and color. Cultured lightning fulgurites are slightly less expensive than natural ones. A seven-inch Cultured Zircon Fulgurite with a Triagonal Orifice created by one of the leading lightning institutes, International Center for Lightning Research at Camp Blanding, Florida, costs five thousand dollars. This cultured fulgurite comes with a Certificate of Authenticity and all the necessary information regarding the little piece of petrified lightning—date, time of lightning strike, recorded current, and recorded electric and magnetic fields.

Consumers buy fulgurites to use as paperweights and centerpieces, adorning end tables and fireplace mantels and serving as a topic of conversation when guests arrive. They may also be placed in a windowsill or encased in glass. Fulgurites come in an assortment of colors and shapes to match the décor of any room. Another fulgurite making company boasts this caption, “Fulguritize’ your stuff. If you have something that you’d like to have melted and resolidified, welded, or made into a fulgurite by lightning, contact us.” They provide a laundry list of materials suitable to be petrified, including, but not limited to: nails, marbles, stained glass, ten thousand paper clips, golf balls, nine irons, fossils, and your favorite beach’s sand. It requires five gallons of material to be fulguritized. Since this service is in high demand, the company advises the consumer to make reservations early and allow two to three summer months for fulguritization to be completed.

Fulgurites have a gnarled, abrasive exterior that

would tug at your skin if stroked, but inside they are composed of refined glass. A breathtaking display of smooth, polished pastels of quartz. Only a true fulgurite embodies strength and delicacy. Ten thousand paper clips fulgurized, I guess, would look aluminum, ordinary, Crayola gray, crumpled. The idea of transforming the ordinary to spectacular is attractive, except that five gallons of fulgurized paperclips will never have the fulgurite colors, will never be frail and delicate, and will never dissolve into sand at the hands of a clumsy sixteen-year-old girl. Fulgurized paperclips will only ever be a twisted mess of metal, reminiscent of crippled cars at a junkyard.

Seekers of the universe’s secrets use fulgurites to connect the physical and metaphysical world. They draw on this high-energy source to make links between otherworldly civilizations and ours. Still others believe that simply touching a fulgurite increases sex drive.

I am not any of these people. I believe fulgurites have a greater potential. We know how fulgurites are created,

when they are created, why they are created, and still fulgurites have the ability to arouse the imagination. Fulgurites propose the possibility of change—of what could become on the fault line of great forces erupting. Fulgurites fuse science and imagination in a way that is not hammered, drilled, sawed, or beveled into creation. The potential lies in the discover of an object, not the making of one, that is the sum of its parts as well as a whole, without dividing the mystery from the proven facts.

In North Carolina, I was sixteen. I found a crooked body stretching feet below the sand's surface with a small opening laid bare to fortune hunters. Squatting on the dune, I played with the opening a bit, letting my fingers trace a near circle of glass in sand. I thought how it could be mine. I'd carve a place for the glass on my shelf, next to my collectible dolls, horse figurines, and old jewelry boxes. It would be my piece of mystery, my personal object of beauty, better than a sand dollar or

conch shell. But this glass, pastel, like my watercolored sky, simply dissolved at my efforts to possess it. I blamed my clumsiness, my impatience, but maybe it was better I didn't take the glass home to be crushed in the suitcase or, if it did make it to my shelf, become a trinket, dust covered, and join the ranks of other abandoned collectors' items.

Now I'm glad for my unsteady hands and clumsy heart. That glass could only survive as treasure in the dune. But I want to go back to age sixteen, just for those fifteen minutes on the dune. Rewind time to see fulgurites not as "that cool thing in the sand" but as part of the world that was created to be enough. Since I can't, I search, to reproduce the sensation of stumbling upon treasure then being in awe of lightning as petrified, but this time, I will have the knowledge about my discovery and can finally appreciate fulgurites, science, myth, and what I wish to feel in myself—to make the experience complete.

Until the beaches of spring break 2001, I had searched

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for this union. Since then, however, I've started trying to find it in myself, reconciling what makes me strong and what makes me frail. But this doesn't mean I've stopped combing the beaches for fulgurites. And when I find nothing, I myself am that treasure in sand that makes people stop and consider. On any beach now, from Fort Lauderdale to North Carolina to around the world, I bury my toes and shins, pack my thighs tight and press my waistline deep into the sand. Then I partially conceal my fingers and wrists. I too want to be stumbled upon and discovered.

Montalbano 90

