

PLANETARY LOSS

My Very Easy Mnemonic Just Summed Up Nine Planets

It might have been my amateur astronomer father who taught me the names of the planets in their order outward from the sun. At the dinner table maybe, or in my parents' bedroom as I eagerly waited my turn while he adjusted the shiny white tube of the small telescope he rented or borrowed for a few days or weeks every summer. Though thinking about it, I'm pretty sure I knew them by then, being tall enough to look through the telescope on my own, without having to stand on a box or be lifted into the air. I was already reading before those summers with the telescope, so it's possible I learned the planets' names on my own, from *The Big Book of Space* perhaps, or *The First Book of Space Travel*, both of which followed sometime shortly after the first book I remember reading wholly on my own—*My First Book of Electricity*.

Narrative fiction, it seems, had to wait until first grade to sink its hooks into me. When it did, though, I was soon traveling with Miss Pickerell to the moon and Mars, stowing away to the Mushroom Planet, and riding with Tom Swift Jr. in his rocket ship, his Space Solartron, and his Cosmotron Express. Later I visited the *Oceans of Venus*, the *Moons of Jupiter* and the *Rings of Saturn* with Lucky Starr; joined the *Space Rangers*, *Starship Troopers*, *Space Cadets*, and *Star Guard*; and somehow managed to find time to become both a *Star Surgeon* and a *Doctor to the Stars*, which came in handy during the *Space Plague*. By the time I was a *Citizen of the Galaxy* in fourth or fifth grade, I could rattle off the planetary order in my sleep. And probably did, much to the annoyance of my younger brother in the bunk bed below me.

Even without my father's motivating interest in science and science fiction, it was almost inevitable that I would be obsessed with space. This was, after all, the late 1960s, the peak of

Apollo. I was too young to remember the tragic fire that killed Apollo 1 astronauts Grissom, White, and Chaffee. All I knew of NASA was one triumph after another, culminating with the 1969 moon landing, which I watched with my extended family, ten or fifteen of us crowded into my grandparents' living room, the only sound the sharp crackling and whistling of Houston Control talking to the moon and the occasional click of my uncle's camera as he tried to take photos of the TV screen.

Growing up in the sixties, every boy I knew, and quite a number of girls as well, wanted to be an astronaut in that far-off future when we would be as unimaginably old as our parents. When people vacationed on the moon. When everyone had a flying car, a personal jetpack, and a housecleaning robot.

As children of the sixties we were steeped in space, surrounded not just by the real-world exploits of NASA (and the Russians as well), but TV series like *The Jetsons*, *Space Ghost*, *Star Trek*, and *Lost in Space* along with Saturday afternoon B-movies such as *Invaders from Mars*, *Angry Red Planet*, and the like. Not to mention cinematic releases like *Planet of the Apes* and *2001: A Space Odyssey*, which we were well aware of even if we couldn't see them, being too young. Even Bugs Bunny had space fever, battling Marvin the Martian as he tried to use his Illudium Pew-36 Explosive Space Modulator to blow up Earth because it obstructed his view of Venus.

We ate Quisp cereal, played with astronaut action figure Matt Mason, chased each other with whirring ray guns, and slept in rocket-strewn pajamas under the tumbling metal drums of NASA, the benevolent eyes of Buzz Aldrin, and the eternally beckoning footprint of Neil Armstrong. Space is what we swam in. It entered through the eyes and ears. We breathed in through our noses and our mouths the sharp tang of space-age plastic as we memorized the seas of the moon and the outward march of the planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and finally Pluto—last milestone on the way to the promised stars.

My Very Energetic Mother Just Swam Under North Pier

My mother was not a swimmer. When she entered our neighbor's backyard pool, she did so slowly, easing down the ladder

one rung at a time, pausing at each to let every patch of newly exposed skin become individually acclimated. Then she would take another minute or two at the ladder's base before gradually working her way around the pool's edge, holding her arms outstretched and letting them skim languorously atop the water as she slow-walked through its chest-high depth. After two or three such circuits, she'd climb back up to the deck and sit, dangling her legs and turning her face up to the sun. Eventually, she'd move to a lawn chair on the patio, usually one of those long recliners. There she'd flip through one of the women's magazines, keeping, I'd like to think, at least one eye on her children still splashing in the pool.

So not a swimmer. Nor a runner. Nor, if memory serves, much of a hiker, though we did go every summer on family camping trips. No, in memory my mother does not exude energy. I envy those who remember their dead in motion, the way they talk of how the dead danced or ran. The way their eyes track the phantom movements in their head. Dead of cancer by the time I was fifteen and weakly ill for several years before then, my mother resides for me most often between the twin still points of dying and dead.

If I think long enough, hard enough, I can call up images of her setting a picnic table in the backyard, furiously scrubbing the kitchen floor, singing Christmas carols. But most of these feel like intellectual stunts of logic rather than actual memory, cookie-cutter templates of "family." I know she must have done these things—she did raise four kids after all—therefore I remember her doing them. And so they lie in my mind like driftwood—scattered and unrooted, sea bleached.

My sister, less than a year older, doesn't recall much more, and my brothers, four and eight years younger, even less. And those whose memories I could plumb have long passed on: her parents, her brother, her husband. The only one left is her sister, who has for some time been fighting a losing battle with Alzheimer's, slipping deeper year by year into the warm bath of deep memory in which her life's tragedies gradually dissolve and float away. Now, surrounded by the never-dead, her children grown small again, she lies fully submerged in a heaven of her own making, taking with her all the memories of my mother. Too deep. Too late.

Though I admit to taking comfort in the thought that somewhere in my aunt's eyes, my mom is moving even now—the lithe girl whose smiling motion blurs the too-few photos of her youth, the still-thin bride whose twirling frame sets her veil aflutter behind her. Or the mother-yet-to-be, cutting through the water, swimming swiftly and energetically toward the future, its visage obscured by a veil of sparkling drops that fall shimmering from her hands and arms before her seeking eyes.

Men Very Early Made Journeys Seeking Unknown New Planets

Planetary mnemonics are a relatively recent invention. There was no need for them for most of human history when one could count the number of planets not our own on one hand: Mercury, Mars, Venus, Jupiter, and Saturn. Assign them the names of a few lucky deities from whatever pantheon was currently being worshipped, ascribe each planet a singular area of influence—war for instance—and then find some explanation for their movement, whether it be travel by stellar boat or rotation of celestial spheres. What could be simpler? Sure, there were the occasional aberrations—comets, meteor showers, etc.—but they appeared so infrequently there was no need to name them, let alone memorize them.

Things only really became complicated with the invention of the telescope. In 1610 Galileo spotted “four Planets [the moons of Jupiter, actually] never seen from the beginning of the world up to our own times.” And the rush was on. For thousands of years we had known fewer than a half-dozen major bodies. Then, in relatively short order, the solar system exploded to include over a hundred moons, countless asteroids and most stunningly, another three planets: Uranus, discovered in 1781, Neptune in 1846, and Pluto in 1930.

No one was sure what to do with all these new objects. Galileo named his four moons the Medicean Planets in a transparent attempt to suck up to the most powerful family in Italy (it worked—it wasn't long before he became court astronomer to the Medicis). The large asteroid Ceres, discovered in 1801, was labeled a planet upon its discovery, as were successive asteroids Juno (1804), Vesta (1807), Astraea (1845), and Hebe (1847).

Even non-existent bodies were being invited to the planetary party. Vulcan was the name given to a planet that was assumed to exist between Mercury and the sun based on anomalies in Mercury's orbit. This was the same type of mathematical reasoning that had led to the discovery of Neptune as an explanation for Uranus's odd orbit. In the mid to late 1800s several astronomers recorded actual sightings (later believed to be sunspots) of the predicted planet transiting the sun, and it was added to the catalog in several texts, such as *Recreations in Astronomy*, by Henry White Warren, whose entry for Vulcan reads: "Distance from the sun, 13,000,000 miles. Orbital revolution, about 20 days." For the next fifty-plus years astronomers kept "finding" Vulcan where the mathematics told them it should be. Finally, in 1915, Einstein's theory of relativity explained away the supposed orbital anomalies and with them the planet Vulcan itself. But people didn't mourn Vulcan's passing for long since it was only fifteen years later that Pluto was discovered at the opposite end of the solar system, no fiery wanderer in the sun's seething wake but a cold stone drifting dark and lonely on the outer fringes, pacing the perimeter of human knowledge and planetary vision like a frozen soldier guarding the borders of a bleak and alien wasteland.

My Very Eager Mother Just Served Us Nine Pizzas

We didn't eat much pizza when I was a child. One reason was simply that pizza wasn't as ubiquitous as it is now. Fast food was just exploding onto the scene: McDonald's, hard as it is to imagine, had fewer than a thousand franchises across the country, Burger King even fewer, and Wendy's didn't even exist. If we wanted burgers, we'd drive to a nearby Carrols for the signature Club Burger, Carrols' version of the Big Mac or Whopper. As for pizza, today's number one franchise, Pizza Hut, had been around less than a decade and was just surfacing into the national consciousness. Pizza was served in restaurants, of course, but being a family with four small children, we didn't go out to eat much at regular restaurants.

There was another reason we didn't go out to eat pizza, or any Italian food for that matter, if my mother didn't feel like

cooking. It would have been considered blasphemy. We'd been raised on regular Sunday dinners at my grandmother's, a fierce woman who spent hours making her own tomato sauce, baking her own Italian bread, making her own pasta. She reserved for restaurant pizza and Italian food the same sort of sneering disdain she expressed for Republicans, Wonder Bread, and the Beatles.

My grandmother's pizza was thick and doughy, a daylong affair that went hand in hand with baking multiple loaves of bread and heaped piles of frosted knot cookies. If you were going to bake, she believed, you might as well bake.

My mother did not inherit my grandmother's love for cooking. Nor her expertise. Or so we used to joke. Looking back, it seems more likely that with four kids under eleven, she simply didn't have the time.

That isn't to say she didn't cook. Or that it wasn't sometimes good. She cooked dinner just about every night but Sunday, and what I remember I remember fondly. Her meatloaf, I recall, was especially tasty. But she prized speed and efficiency over subtlety and depth. Not for her the hours of bubbling tomato sauce or simmering soups on the stove, crushing fresh herbs and stirring them into the mix. Instead we had lots of easy-to-cook meats: broiled steaks and pork chops, the aforementioned meatloaf, loads of hamburgers and hot dogs. When we had pasta or pizza, it was usually on Tuesdays—leftovers from Sunday dinner. Who, after all, wants to compete with homemade tomato sauce slathered over homemade pasta noodles, seemingly fresh from the Old Country?

When my father and mother separated, and then when he died of a heart attack a year later, things began to change. We began to go more often to my grandmother's for dinner and come back even more laden than before. And we also began to eat more pizza, frequenting a sit-down pizza place called Proietti's just a fifteen-minute drive from home.

Taking care of four young kids on her own had left her even less time to cook, and the loss of income also meant fewer steaks, subsidized school lunches, and the thin, sad, revelatory taste of powdered milk. We were also just learning another reason why my mother lacked the energy to cook as well as ride herd over us—she was dying.

Over the next three years, it seemed a race to see what would sap her energy the more—the cancer eating her from the inside or the radiation beams and chemotherapies directed at her from without. The first year after my father's death wasn't so bad. She somehow managed to keep up her spirits, in front of us at least, despite losing her hair, despite the round-the-clock nausea. But it wasn't long before the good days began losing ground to the bad, ceding territory grudgingly but inevitably.

She began spending more and more time on the couch, less and less time on her feet. Neighbors began bringing meals over or suddenly inviting us kids to eat dinner at our friends' houses as if the idea had just struck them, though there was always enough food and always something we liked. My grandmother stopped waiting for us to come over to load us with leftovers and instead began just bringing food over—huge containers of pasta and meatballs, large picnic thermoses filled with sauce. My uncle would bring us over to his house to swim, then casually suggest it would be more convenient for him to take us home after dinner.

My mother hardly cooked at all anymore. My sister and I learned how to make hamburgers and hot dogs, macaroni and cheese, and spaghetti. How to open the big bottle of store-bought Ragu sauce, its overly sweet taste turning acidic in the mouth.

And we learned pizza in all its forms. Frozen pizzas that stuck to the packaging as much as they stuck to your teeth and then your stomach. Mini-pizzas that lay in the palm of your hand so you could fold them in half, then quarter them, then slide them into your mouth and down your throat in a single bite before their awful taste had time to linger on your tongue. French bread pizzas that were quick and crunchy, easy to make, and that quickly became my own personal favorite. Round pizzas. Square pizzas. Pizzas with cheese that wouldn't melt if you turned a blowtorch on it. Pizzas that burned your thighs through the box you held on your lap on the way home.

You could chart my family's fortune by the pizza we ate. The kind, the frequency, the amount. The way my mother stopped eating it because it made her nauseous even to be around it. The way my grandmother still made it by hand after she and my grandfather moved in to take care of us after my mother

died. The way she ghosted the entire table with white flour, then threw the dough down and kneaded it, pressing down hard with the heels of her hands and then the knuckles so that they left hollows in the dough, the opposite of how they themselves had been marked, deep imprints left by her teeth as she held her fist in her mouth, biting down hard to keep from wailing. When the dough had been stretched as thin as it could go without tearing, she folded it back in on itself, then started again.

Many Voracious Earthlings May Jump Soon Upon New Planets

Pity poor Pluto. Last one invited to the party and now the first one being asked to leave. This should be a giddy time for Pluto: celebrating the seventy-fifth anniversary of its discovery, toasting the recent sighting of two more moons circling its far-removed sphere, and waiting like a hot-breathed adolescent for the upcoming arrival of its first planetary probe (visual only sadly). The spacecraft New Horizons is due to reach its destination between 2015 and 2020, before both Pluto's ardor and its atmosphere turn too frigid.

Rather than celebrating, however, Pluto finds itself fighting for its identity, grimly holding tight to its historical designation as the solar system's "last" planet, refusing to surrender it until the title has been pried from its cold, dead orbit. Which very well may be about to happen.

This wouldn't be the first time scientists have taken Pluto down a peg or two. Ever since its discovery it has had to endure a string of public humiliations. First it gave up its treasured place as the sole outermost planet when it was calculated that every few centuries Neptune's orbit actually curves beyond Pluto's for twenty years or so. Then, successively more accurate measurements of Pluto's size kept reducing it in stature from the size of Mars to less than half the size of the next smallest planet Mercury, smaller even than a half-dozen moons, including our own. The discovery of Pluto's own moon, Charon, in 1978 further confirmed Pluto's shrinking reputation. Indistinguishable from its parent planet until better astronomical tools were available, Charon had mistakenly been incorporated into the earlier estimations of Pluto's size. To add insult to injury, since

Pluto and Charon were so close in size some suggested they be considered a “double-planet,” Pluto sharing planetary billing with its own satellite.

So Pluto has long grown inured to slights. But it now faces its most serious assault. Astronomers have long known that past Pluto lies a region filled with small, icy bodies that eventually work their way closer and become the short-period comets, such as Halley’s comet. This area is labeled the Kuiper Belt and the chunks of rock and ice that permeate it Kuiper Belt objects (KBOs), after the astronomer who first predicted it.

This originally didn’t seem to pose much of a threat to Pluto’s status. Small chunks of rock and ice are just that—chunks. And Pluto, as everyone knows, is a planet. It orbits the sun, it’s round, it has a moon, and despite its recent shrinkage, it’s still the biggest thing out there.

Or at least, it was. But in July 2005, astronomers led by Michael Brown at California Institute of Technology announced the discovery of an object in the Kuiper Belt that was also round, also had a moon, and in the possible coup d’état, was larger than Pluto. Soon afterward, two other trans-Pluto bodies were detected, each nearly as large, leading astronomers to predict the existence of many more similarly sized objects out in that distant reach.

Soon the debate was raging in the astronomical community. Were these new discoveries additional planets? Or the death knell for Pluto’s already tremulous status? Scientists began to choose up sides—committees were formed, articles written, voices raised. Finally, in summer of 2006, the International Astronomical Union settled on a new definition of planet based on three criteria: it must be large enough that its gravity makes it round, it has to orbit the sun, and it must have cleared its orbital path of any other objects. Pluto, which met only the first two requirements, was seemingly out of the club, as was Brown’s discovered object, newly named Eris. Joining them in a brand-new category were a host of other smaller bodies, now labeled “dwarf planets.” Immediately though, pro-Pluto astronomers began a petition drive to have Pluto reinstated at the next meeting in 2007. And so it currently stands.

So what does all this mean? Is Pluto still a planet? If so, then what are Eris and all those yet-to-be-discovered KBOs? Do we reduce the solar system by one, demoting Pluto to KBO status,

as the IAU currently recommends? Or do we expand it by one, three, or possibly dozens more planets? Or do we acknowledge the inherent inaccuracy of keeping Pluto as the final planet while not adding the others, doing so for purely sentimental or historical reasons as opposed to scientific ones?

The last is my own admittedly layperson's opinion. There is something to be said for sentimentality, for tradition—for not rewriting all those mnemonic devices we learned as kids to better remember the nine planets in order from the sun. For not diluting the mystery of a planet named for death and kept company by Charon—the ferryman of souls. We shrink the world in such a myriad of ways: cell phones and e-mail, satellites and teleconferences, supersonic planes, suburban sprawl, the ongoing and accelerating extinction of species. Perhaps it's time to take pause before adding yet another to the sad litany—the planets reduced by one, mystery and mass displaced and lost.

My Very Enigmatic Mother Journeys Somewhere Unfamiliar Now

I don't know exactly when my parents learned my mother had Hodgkin's disease. Certainly there didn't seem to be any such darkness hanging over my first few years of memory. While they obviously wouldn't have told a four- or five-year-old that his mother was dying, I'm pretty sure I would have picked up on something, had some sense of bitter shadow flitting across an otherwise laughing face. I know it contributed at least somewhat to their loud arguments and eventual separation when I was ten, though I cannot say whether that is when I found out myself, listening to their yelling through the floorboards of my bedroom. It couldn't have been much past that point, for by the time my father died, when I was twelve, I had already accompanied her several times to her radiation therapy at nearby Strong Hospital.

I have very little memory of these visits. A vague recollection of narrow waiting rooms filled with a few people who came and went and did not speak in between. Smooth-voiced doctors speaking to my mother in the corridor. My mother paging through magazines.

My single most vivid remembrance of this time is of looking

through a round window set into a heavy door, watching her lying face up on a table before a huge machine, though whether this is real or imagined I have no idea. It's possible I created it in my mind at the time, a collage of half-heard conversations and images plucked from science fiction books and films. People were always getting bathed in some sort of rays in my books or movies, and despite the sleek curves and shiny plastic of the hospital's newest humming technology or the doctors' cheery-eyed optimism when they spoke to me, I knew those mysterious rays killed as often as they healed, turned people into monsters as often as into superheroes.

The real world was no more comforting. Radiation might have been my mother's best hope, but I knew too that it was one of NASA's greatest fears for its astronauts, that it was what had killed Madame Curie in that biography I'd done a book report on, that it was the specter of radiation poisoning that led to my crouching under my desk in first-grade drills, arms crossed over my head. I had little faith in radiation as my mother's savior.

A lack of faith that seemed confirmed by its effects—the loss of her hair, the various wigs she went through, the nausea. The way the radiation combined with the chemotherapy slowly over the next three years shrank her geography—how she stopped leaving the house, then stopped going upstairs, then hardly left the couch in the front living room, the circuits of her movements constricting until finally her body bowed in upon itself so she lay almost always curled in pain, her head pressed to her knees—a waning crescent of a woman.

When I think of my mother this is almost always the first image to come to mind, the one that must be wrestled with, cast off so that others, more palatable, more personal, can rise in its place. Death will do that sometimes—rob the remembered, stealing over time not just their faces, their voices, but their living motion as well.

The heart, the blood, these are only the first stoppages. What follows? The way they walked. The way they laughed, not just the sound of it but the movement—did she throw her head back or fling it forward? The way they threw a ball back through a broken window. The way they carried you—cradled in two arms before her body or slung up high and soft against one shoulder? Already, well before she died, these had become things barely

recalled, things almost out of history, beyond history—things to place alongside the extinction of the dinosaurs, the cooling of the earth, the formation of the solar system from clouds of spinning cosmic debris.

Even as she was pulled further and further into herself, she moved farther from our orbit, growing more unfamiliar even as we moved through the regular motions of our lives around her—school, chores, television, homework, bed—while the disease gradually transformed her, turning her foreign, alien. More and more she snapped at us. Didn't see us. Didn't feel us. The disease negated what we once had so thoroughly known until by the end she became defined only by negation, by memory, by absence: Not-herself. Not-mother. Not-life. The bright fire of her personality had faded away, and we her children, feeling already the chill tug of impending vacuum, were left only to watch as she swung farther out into the cold dark emptiness of her long slow dying.