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N Q R

IT'S UNCOMFORTABLE STANDING BEHIND THE ONE-WAY MIRROR. It extends from the drop ceiling to about chest height, so the gray metal chairs aren't high enough to view the clinic room. The air tastes stale, marked by a tinge of glue once ladled under the blue-grey carpet. I watch through the mirror, my two graduate students standing beside me.

A six-year-old boy walks through our clinic room door, pauses, then continues toward a few toys scattered by a bin and a squat table near the left wall. I see wooden blocks, a plastic action figure, and a small pillow that looks like a smiling locomotive. He picks up several blocks and brings them to the center of the room. A clinician in her late 20s enters the room followed closely by a man and a woman. She gestures toward two small plastic seats formed like ice cream scoops, perched on thin chrome legs, better fitted for children. The boy's parents sit down, side-by-side. The clinician sits down on a small chair by the wooden table. Knees high, she writes on the cover of a light blue pamphlet. The boy sits on the red-orange carpet, one leg curled below him, the other extended to shield the blocks.

The clinician reaches toward a blue polyurethane bin, its lid faded under the fluorescent lighting. Scrawled on its surface, as if there were no thought to its semi-permanence, reads, 'ADOS Kit Complete: Autism Clinic.' She wades her hand through the bin and draws out a bulky translucent plastic bag, opens it, and lets toys tumble onto the table.

"Jason, I have some toys here…"

On the floor, the boy turns a block, cradles it in his fingers and drops it, turns another block, cradles it in his fingers, and places it on the carpet.

An autism diagnosis is nuanced. Clinicians find children as "on the spectrum" if they repeat certain behaviors or thoughts and have difficulties with social interactions and communication. Each child on the spectrum tacks on a different orientation. One boy sways back and forth by the front door. A girl twirls all day by

the living room window. A boy, anticipating a toy, looks down and flaps his hands like a baby bird, elbows in, wrists hinged, fingers cupped, and stepping high-kneed, in place. Repetition can also be a mental predisposition. A child might repeat the name of every state capitol, another every president's birthday or the location of every yield sign in town.

Autism always includes difficulties with communication and social interaction. Rather than ask his mother to open the refrigerator door, an autistic child might use his mother's arm to open it, like it's the broken arm of a large robot. Fractured also is the conduit between internal emotions and the ability to express them. When words come out, intonations don't match their meanings. A child might talk with an unchanging flat pitch or perhaps in a melodic voice, even when he doesn't feel musical.

Autistic children can also have difficulty discerning emotions expressed by others. Typical children recognize that the bounce in a voice suggests something different from a quiver or a mumble. They can read fear or surprise in the white corners of someone's widening eyes or gesturing hands. Autistic children often don't perceive such cues.

"Jason?"

A steady drone of air pushes through ducts in the clinic walls. We press our ears to phones connected to the wall next to the mirror. The clinician's voice breaks through crackles from my phone cord.

"Jason. We have so many toys to play with."

Jason makes a quick glance toward the toys on the wooden table, his straight blond hair buckling against the back of his neck.

She persists, "Ah, look a fire truck! It's a new one, a shiny red one. Beep! Beep! Jason, I wonder where the fire truck is going! Look at the ladder. How high it goes!"

Jason pulls himself up and steps toward the table, his narrow arms pressed against the horizontal stripes of his T-shirt, his body slanted forward. He puts his hand on the truck, bends down and peers sideways at the wheels, rolling the truck back and forth over the wooden surface.

"It can move back and forth!" She speaks in a practiced tone with carefully placed nouns and an over-emphasized upward-trending pitch. Jason lets go of the truck and places his hands at his sides.

"Does it have a siren? I think it has a siren." She turns the truck over and looks for the siren switch. She finds it and thumbnails it on. "Do you hear?"

Jason has moved back to the blocks.

From across the room, Jason's father occasionally looks toward the clinician, his elbows resting on his knees; a coffee cup nestled in thick fingers. His eyes hold mostly on his child. The boy's mother presses her palms against her thighs and leans back against the wall behind her chair. While the clinician writes her observations in the ADOS pamphlet, Jason mounts a second block on the one on the carpet. The upper block leans forward.

Prevalence

Autism isn't an old diagnosis. Leo Kanner coined the disorder in the early 1940s, as a physician at Johns Hopkins University, not far from Baltimore's Inner Harbor. At the time, the city was thriving, a vibrant seaport next to a rail hub pulsing with locomotives and a powerhouse of steel mills building Liberty ships for the war effort. Baltimore Harbor was also home for an abundant commercial fishing industry, canning fish and oyster harvests from the then fertile Chesapeake Bay.

Separated from the din and diesel of those foundries and fishmongers, I imagine Dr. Kanner's office a harbor of a different sort. I can almost see his office in hues of brown and grey, oak chairs and a desk, an overhead fan descending from its stamped Art Deco base, and window panes cutting stacked rhomboids of overcast light across his concrete floor. I hear the clap of leather-soled shoes and windows rattling with each onshore gust, each pane just insulating his office from the rumble and exhaust of traffic noise outside.

I picture Leo Kanner's voicing each question in the tides of a child's breath, close enough to see eyes just start toward him then rivet forward. In his first seminal paper, eleven children were described as "happiest when left alone… like in a shell… acting as if people weren't there… failing to develop the usual amount of social awareness." In the midst of a world war, his native Europe facing social catastrophe, an aura of peace and intimacy survives in those early descriptions of the children.

During the decades that followed, clinicians diagnosed many more children with autism. By the 1970s, they began to count them. At first, one out of over two thousand children was diagnosed with autism. Its prevalence ascended, first slowly,

then dramatically, propagating like the mythical heads of the Hydra to multiple disorders. Now, more than one child out of a hundred, typically male, leaves a clinic with the positive diagnosis.

Since the early days, clinicians speculated on its causes, whether autism emerged from genetic or environmental 'deficiencies.' Parents can serve as the genealogical version of a pipe fitting, unwittingly routing ancestral DNA into a genetic composite that renders a child vulnerable to autism. Some of the best evidence for genetic inheritance comes from twin studies. Fraternal twins are no more genetically similar than any other siblings but identical twins carry matched copies of DNA. Identical twins are also substantially more likely to share an autism diagnosis; if one child has autism, the identical twin is also likely to have it. Genetic inheritance of autism suggests that the disorder might be natural for our species, a trait from our ancestors.

Considering the possibility of autism as a natural phenomenon, I remember a conversation with a mother of an autistic child following a presentation of my lab's research. She approached me, dressed in a smock of alternating black and gold vertical stripes, a black turtleneck and a gold brooch. In a voice assertive but quiet, as if speaking heresy, at once resolute and inquisitive, she confided why autism for some children might be a natural phenomenon. Was her son healthy within his own world? Her child was diagnosed with 'high-functioning' autism, engrossed with his own interests, indifferent to other children, rarely responsive to teachers, but his relationship with her was intimate, interactive, rewarding. Does our society place an excessive premium on how people present themselves, make a convincing sell, and become 'team players?' Her son has a sense of place, a deliberate and peaceful hold on his environment. Are some autistic children quite healthy? Has society changed? Sometime in our ancestral past, her child might have become one of the essential people of our human history who invented the wheel, plumbing, or the tines of a fork.

Since the early days of its diagnosis, clinicians and scientists have also asked whether autism reflects some underlying change in our environment. Sure, genetic inheritance provides a foundation for autism susceptibility. But a child is also shaped by transient environmental factors, just as water helps shape and set powdery cement into a basement foundation. Then it evaporates. Identical twins share the same genes *and* grow up side-by-side in the womb, nurse from the same mother,

In the 21st century, some 35,000 chemicals travel the globe incognito. We spray them and wear them. We eat, drink, and breathe them.

breathe the same household air, drink the same water, and mouth spoonfuls of the same foods.

Back in 1989, I was a graduate student, investigating why large numbers of bottlenose dolphins beached along the Atlantic coast from New Jersey to Florida. Their carcasses were overwhelmed with infections and enormous exposures to unnatural chemicals. Interested in whether ocean pollutants impaired the dolphin's immune response — the ability to fight off infections — I joined a group of scientists studying a dolphin population in Sarasota Bay, on the Gulf Coast of Florida. We trapped dolphins and hoisted each one onto a boat. We took measurements and drew blood samples. We tested the health of their white blood cells and quantified their blood levels of pesticides and industrial pollutants.

We learned that males carrying the highest levels of synthetic chemicals, PCBs and DDT, showed the weakest immune responses. At about the same time, other researchers found that female dolphins unload nearly half of their lifetime accumulation of synthetic chemicals to their firstborn calves. Yet another study found that half of first-born calves die at sea. Taken together, these discoveries suggest that pesticides and industrial chemicals pose a mortal threat to dolphins. We can't know with certainty. Beneath the ocean's surface, we can't see a new mother prod her moribund calf to move, her nose pressed against his soft abdomen so that he might breach the waves and breath. She would be coaxing the calf to engage.

"Jason?"

In the early days of chemistry, the harmful effect of any unnatural chemical, or any chemical unnaturally concentrated, was easy to identify, oddly arising from a rather pristine landscape. For instance, in the 1800's, a factory worker might toil over wooden blocks, shaping beaver fur into hats while standing amidst purls of steam and mercury fumes. With time, his fingers might tremble, his ankles twitch, his speech slur. He might explode with anger. Months or years later, he'd wake up a stranger in his own mill town, "mad as a hatter."

By the early 1900s, chemists were fusing molecules together, building 'synthetic' chemicals. They tested their uses, their limits. Could they persist? Iron rusts. Larvae eat wool. Wood rots, burns, and festers mold. They concocted polychlorinated biphenyls (PCBs) that were ridiculously stable. Could they kill insects? DDT dwindled malaria-bearing mosquitoes. Toxaphene eradicated boll weevils nesting in cotton crops. Protect fabrics? PFOS repelled stains. Coated on the threads of children's pajamas, PBDEs resisted fire. Variants and combinations multiplied… hexachlorobenzene, mirex, dieldrin, chlorpyrofos, 2, 4 ,5-trichlorophenoxyacetic acid….

In the 21st century, some 35,000 chemicals travel the globe incognito. We spray them and wear them. They glide on wind and ocean currents, climb the food chain, surface in our grocery stores, and slip past our checkout scanners. We eat, drink, and breathe them.

Process

Back in the clinic room, Jason picks up the toy shuttle, turns it in his hand, and flies it in figure eights. With his other hand, he picks up a waxy pink action figure, a Marine in a sleeveless camouflage shirt, its brawny arm extending upwards. Jason stands the Marine on the table and maneuvers the shuttle in figure eights, just out of fist range.

The clinician watches him for a minute, her chin leaning behind her nested fingers. She writes on the blue pamphlet, then draws herself upright and picks up a nurse doll. She bobs its rigid body toward the Marine.

"Hello! Hello there! What's your name? Can I play? What are you doing? Is that a rocket?" She beckons in a high-pitched voice.

Despite her entreaties, he continues with figure eights. Finally, the fist of the Marine connects with the space shuttle and it nosedives to the carpet. The clinician sets down the doll and writes in the blue pamphlet. Jason returns to the carpet and the blocks. She finishes her notes and looks for another zip-lock bag, another test from the faded blue bin.

The graduate student beside me clears her throat. She attends my seminar on autism. We read and discuss clinical research papers on features of the diagnosis, abnormal brain development, and on my lab's research — how to study the social interactions of mice to find causes and treatments for autism.

Mice, like humans, are social creatures. In their natural environment, hundreds can live together within a single acre, sleeping in underground burrows during the day and emerging from their thimble holes at night to forage and socialize. Dominant mice scent-mark their boundaries. Others trundle past these edges to fallen seeds, piled grains, or unearthed tubers. Mice sniff the air to discern a brother from a cousin, an estrous female from one who isn't, an unruffled confederate from a fearful one, or the palatability of a novel food sensed on the breath of a passing friend. Through gestures, odors, and vocal parleys, they negotiate their commutes, boundary disputes, and nighttime feeds. In nature, they commune and communicate.

Our lab studies mice that live in cages built for size 9 shoes, a world reflected by clear plastic walls. They sense us beyond their walls by the sound of a cap snapping off a test tube or a syringe needle ripping through its paper case. Although confined to shoeboxes for hundreds of generations, lab mice still carry remnants of their social heritage. They prefer a social visit to solitude. They feel fear when they hear the squeak of a partner. They seek companions in places that resemble former hangouts. When they convene, we listen for chatter. Our lab studies the social behaviors of juvenile mice as a proxy for a human child.

Fifteen days through a nineteen-day gestation, we inject a synthetic chemical into a pregnant dam, under the loose folds of skin behind her neck. A week later she gives birth. After a month, we wean her pups. Our experimental mice look normal, slight but not skinny, alert, well groomed. They burrow as usual, their paws shoveling corncob bedding beneath and behind them. They pull themselves belly up to eat at the wire rack suspending their chow pellets. But later, we notice that each mouse sleeps in its own corner. Normal mice sleep huddled together. When we introduce a new mouse to a cage with a solitary juvenile, our mice don't approach. We hear fewer vocalizations. Normal juveniles greet a newcomer. If you were to jot down your impressions, you might note something like Leo Kanner's original observations: "like in a shell... acting as if others weren't there... failing to develop the usual amount of social awareness." You might wonder if the chemical we injected causes autism. As do I.

All experiments, controls included, might take our lab two years to complete. If the experiment convinced us their behaviors were abnormal, we'd write a scientific paper. But what would we prove? Did our chemical contort brain anatomy? Did it

change brain chemistry? All we'd seed is uncertainty. We'd have more questions. Why is our chemical toxic? Does it excite fetal neurons to signal too often or deflect and block their signals? How universal is its toxic effect? Can it cause social indifference in other mouse strains? What about rats? Primates? Over years, answers to these questions might stack as enough "*weight of evidence*" that our chemical injures the developing brain.

But would these findings be relevant to Jason? Would they be relevant to any human child?

Prism

Some science works like a glass, say the focusing lens in Galileo's telescope. A nurse draws a child's blood. A chemist feeds his blood extract into a chromatography column that separates the synthetic chemicals, passing them to a mass spectrometer where the chemicals are identified and quantified. By comparing hundreds of children, statisticians can build massive data tables and look for relationships between letters and numbers, between children diagnosed with autism and the levels of unnatural chemicals in their blood. Some autistic children harbor abnormally high levels of pesticides. Some have difficulty expelling unnatural chemicals from their bodies.

But this kind of science is more like a prism, refracting our results into a spectrum of new questions. Some children bear high levels of chemicals that are toxic to rodents yet appear healthy. So, is the chemical safe? Or is it safe under certain circumstances? We can't tell. Measurement of a chemical level in a child's blood doesn't tell us whether he was first exposed during a sensitive or resilient period of his fetal development. Or did he inherit an uncommon resiliency to the chemical? Did his mother eat a protective food during her pregnancy? What would that food be? We look through prisms and we see hues. Perhaps the chemical is safe. We question protocols, review procedures, and we speculate.

Short of deliberately exposing an expectant mother and watching to see what happens, we can't *know*, can't *prove* that a chemical causes autism. We can't peer backwards through a time lens to *the* critical moment during his development when a particularly important set of neurons was highly sensitive to injury. We can't peel back his skull and watch the waves of synthetic chemicals course through his fetal

brain. We can't observe how his brain responds. Only later can we study proxies, faint shadows of a former injury.

Another approach is to infer chemical exposure from a mother's diet. An obstetrician could ask a pregnant woman to complete a diet survey describing her typical meals, whether she eats cheese, beef, pork or fish, what kind of fish, whether her diet consists mostly of organic food. We couldn't evaluate her lifetime of ingested chemicals but we might collect a glimpse of what's now circulating in her placenta. But even so, our view would remain opaque. The survey wouldn't tell us where her foods originate. The tilapia in her corner grocery store might come from Mississippi or China, cheese from Wisconsin or Holland. Eggs might be collected from poultry farms in Iowa or Texas. Invariably, chemicals vary from region to region.

When we consider 35,000 ubiquitous chemicals and their combined effects, the headland of variables looks insurmountable, labs facing thousands of years of research. Our successful experiment may well highlight a pattern, like the texture in the drop ceiling of our clinic room, but barely hints at the ducts, pipes, wires, and network of questions suspended behind.

Meanwhile, Jason faces a challenge of his own. Right now, it involves wooden blocks. The block used for the base of his tower is damaged. The red picture embossed on its white surface is peeled back to the natural wood grain. The uneven plane faces upward and any block he sits on it will lean. When he places his third block on the leaning block, they both slide off. Insurmountable? He needs to pivot that bottom block by 90 degrees.

The clinician has a blue plastic block in her hand and brings herself down to the carpet, knees just outside the boy's small space. With practiced emphasis, she describes her shiny block, as if it's something she just discovered. I hear her voice clearly now. Jason sees the block and reaches for it. She pulls it back toward her abdomen. Jason watches the block and reaches for it again. He doesn't look toward her eyes when she extends or retracts the block — though it's an odd behavior for an adult. He doesn't peer upwards to glean her intent. He glances toward the legs of his parents.

The clinician walks back to the table, writes in the pamphlet, and returns with a thin stack of papers. Jason has two blocks stacked. As he reaches slowly for another block, she drops the papers and they flutter onto the floor beside him.

"Oh no!" she exclaims.

Jason looks at the pile of papers on the floor and then back to the block he was about to pick up. His mother notes the papers on the carpet then glances back to her son. Jason's attention is fixed on the third block now in his hand.

Through the mirrored window, I watch Jason, his small features, his rounded nose, his straight blond hair, his small fingers turning each block, tentatively reaching for one before lifting another. I focus on the tilts and pivots of his head, the soft pass of his eyes toward our mirror, his apparent indifference to each choreographed entreaty.

But deeper still, I feel a false sense of knowing, like I'm judging passing commuters from behind reflective sunglasses. I have private access to a single dimension of the visible. I watch the boy's father in his faded yellow T-shirt, his thumb pressing into his paper cup, his shoulders leaning toward the scrimmage line of an impending diagnosis. Through the crackle of my phone line, I hear him clearing his throat, or maybe it's a change of airflow through a wall duct. There are no windows here. Does Jason hear what we can't hear, like the sound of his blocks when they tumble onto the carpet? Did his hand tremble after the stack of papers fell next to him? Can he sense his own heart beating?

And what is it about those blocks? Why not play with that thumb-size spaceman with the square shoulders and the steam iron shoes? Why not roll the all-terrain vehicle over the red —orange desert of polyurethane carpet? What is it about those blocks? Does that stale wood and vegetable stain smell like his grandmother's house? Does he relish the faint residue of other children's fingerprints on their porous surfaces? Can he feel the remnants of their desire, their frustration? We can't squeeze ourselves into his mind.

When the process of science can't peer through a lens or a prism, it's staring at obsidian.

Patterns

Behind the mirror, my thoughts jump back again, years now, to an evening walk along the edge of a bay on the west coast of Canada. Dead fir trees bridge a pebbled beach little wider than a path, their trunks propped against the cliff and stitched into the bay.

Perched on a small patch of sand, a bald eagle looks into water at its feet. A few yards from the beach, water flecks grey-green troughs and orange wavelets bending sunset. Amidst these flickers, not far from the eagle, the head of a harbor seal posts motionless like granite.

Historically, humans hunted seals. They're protected now. She wouldn't know. Her instincts should tell her to swim away. She watches me. She doesn't dive beneath the brown seaweed to watch me refract through the wavelets. With me she hears the dry hinge creak of a leaning tree trunk. Our faces feel an inland breeze. Her eyes set on me like obsidian stones.

Does she wonder why I don't join her watery world, swirl in her ocean, roll with the waves? From her perspective, in a way, I might be like an autistic child, not engaging in her watery realm.

Yet I've come to see autism in her world —through the eyes of a volunteer at a rescue center north of San Francisco, a slight veteran in tall rubber boots, his hair sun bleached and his arms freckled in broad splotches. The center rehabilitates sea lions stranded along the California Coast and he describes sea lion retrieval from mud flats, parking lots, grocery store isles, and passenger seats, trucking animals to the rescue center, thawing their frozen fish, feeding them, cleaning their pens and returning them to sea.

"Picked up a female this yesterday."

"Why's she here?"

"NQR," he says, pursing his lips, letting the edge of smile escape.

"NQR?"

"'Not Quite Right' — that's what the volunteers call it. The veterinarians diagnose it. The one came in today moves her flipper like a robot with a mechanism malfunction."

He tells me about other sea lions. An adult backs himself away from an invisible attacker. Another barks incessantly at flying sea gulls. A juvenile sways her outstretched head like she's listening to music. They're often sitting on police cars. Their social behaviors can be strange or indifferent.

While sea lions are loaded with unnatural chemicals, the blame goes to a natural toxin manufactured by small water plants, algae called *Pseudo nitzschia*. Under a microscope, each single alga looks like a clear plastic kayak with two green hatches.

They float connected, each bow fixed to the stern of a neighbor. If you step back the magnification, you see double-edged needles pressed end-to-end in loose fitting haystacks. A massive flotilla.

Like other algae, *P. nitzschia* grows quickly when fed nitrogen and phosphorous — the working elements of fertilizer and the quiddity shared by soaps, detergents and biological waste. Flushed down our drains through millions of small pipes, like capillaries, to enormous concrete pools where they are aerated and digested and pumped with diastolic constancy into the nearest passing river, marshland inlet, or city harbor, these wastes feed algae.

On the West Coast, these algal blooms moor beside Los Angeles, San Francisco, and the Strait of Juan de Fuca, which swallows the wastes of Seattle, Bellevue, Vancouver and a myriad of waterfront townships nestled between the Olympic and Cascade Mountains. In the waning months of summer, ocean currents spread these county-sized purls down the coastline.

Filter feeders, shellfish and some small finfish, browse on these tiny green flecks of algae and fill their bellies with domoic acid, shielded from its toxic effects. Rather, this toxin harms marine mammals that consume enormous amounts of seafood to maintain body heat in a cold ocean. Depending upon the amount of domoic acid and other pollutants ingested, a sea mammal might lose orientation, behave oddly, or writhe in convulsion, submerge into a coma, die. If it doesn't drown and decay beneath the waves, it might be coughed up along the coast, chin pressed into wet sand, front flippers spread like a grounded plane.

Taxonomy says that seals and sea lions descend from different families, that flippers and feet emerged from different branches of our evolutionary tree. It also says that an autistic child arriving at a hospital clinic bears no linkage with a young sea lion malnourished and belly down on a beach. But standing behind this reflective mirror, I gaze into an odyssey of patterns. I see chemistries passing through the filtering membranes of the placenta and bobbling with the molecules in mother's milk, heedless of host shape, color, or swimming ability. The trials of marine mammal communities are not so distant from the challenges of a family with an autistic child.

Provenance

Along the westward shores of Scotland and Ireland, people live within a world touched hard by latitudes that oscillate between long summer days and a dark, wet world, once glimpsed beyond the glow of burning peat. Long ago, beneath roofs of thatched straw, they kept warm huddled with their cows, sleeping on the dirt floors of low stone houses. Cairns along the roadside marked where an uncle died or where pallbearers momentarily eased his casket. Fishermen worked their lines from *currachs,* shallow vessels made of cowhides sewn together and stretched over wooden ribs. They shouldered their catch in wicker creels and the saltwater from the fish scales dripped onto their wet pants. The membranes between human and cow, land and sea, life and death, were minimal.

Folklore from the Outer Hebrides and the Shetlands told of stories our modern society might easily reject, stories of selchies, which we call North Atlantic grey seals and with whom they shared their lives. The oldest lore tells of female seals who shed their skin on the coast to transform into beautiful women. If a wandering fisherman or crofter found a skin, he could marry the selchie. She'd live with him in his home and join his community, hiding her finlike feet beneath long dresses. If she were to fall out of love and locate her skin, she could slip back inside and dip down below the ocean waves again.

More recent tales bear witness to seals and people still surviving together — of a seal that nursed a lost boy, of another seal that guided home five men in a wayward currach, of men who killed seals and dropped stone dead within the year. To the skeptical eye of modern science, these stories are no more than fancy. But I wonder if the Celts understood a connection we can no longer see, wisdom of an ancient world of linkages, of skin slipped and taxonomical boundaries breached, where we might find a loose stitch between our actions and a child who doesn't return our gaze, rocking back and forth before his stacked blocks.

Our mythology is that eating organic food means that our own wastes can't plumb their way back to our dinner table. We believe that if we recycle our grocery bags and plastic bottles, these actions somehow negate the reality that disposables are made by paper pulp mills, oil refineries, and plastics companies, each with their own waste streams. We believe that "sustainable" means pristine. We believe that

the exhaust from a jet engine or an automobile, the wear of a rubber tire, the flame retardant in a discarded set of pajamas or the weed killer sprayed on the lawn will somehow never gain access to the inside of a milk carton. Our myth is that our own wastes stay put, that they don't conduit back and penetrate our shrink-wrapped package of chicken cutlets stacked so neatly on a Styrofoam plate. The truth is, our world is burrowed and infused, refracted and permeated. Our coastlines are breached.

The clinician no longer faces Jason. Her blue pamphlet is back in its folder on the low table. She kneels on the carpet and speaks toward his parents, away from the dangling microphone, beyond our hearing range. Jason's father still holds his paper cup, now bent in his hands. His mother nods. Her temples flush. She shifts her gaze from the empty space between their child and the carpet toward our window. I imagine her studying a reflection of the drop ceiling.

In this swirl of uncertainty, I watch Jason walk back to his wooden blocks. Three are stacked on the carpet. He palms the fractured wooden block and turns it on its axis. I see the broken surface pass with each rotation. Insurmountable? I wonder.

Might we write off the convenience of a disposable cup? Can we learn from those living on the outer edges? Our wastes return like a mirror reflecting our own image. Maybe we're the ones who are not quite right. Maybe we can't wait for the science. It might not come.

I look back again at Jason. He's stacked the fourth block on his tower.