Five Years Without Freshness: A Memoir of Mercury Poisoning

A Fishy Sensation

My symptoms came on quickly, presenting within a matter of three months: facial tremors coupled with the tightened, jawline sensation that I'd just drank a very bitter beer; white flashes in my peripheral vision whenever I turned my head a certain way; a swift increase in malaise I'd falsely attributed to recent major life changes; and the near-total loss of my short-term memory. The facial tremors were worrisome—my grandfather has a form of motor Tourette's¹, causing him to periodically purse his lips to the right and roll his chin to his collarbone in a short, incomplete loop. Mine weren't as severe; I'd describe them as sour spasms that I could mostly control. No neck involuntary neck rolling, but a good deal of tingling. I also cannot pretend that as someone diagnosed with clinical depression by the age of seventeen that I wasn't accustomed to occasional acute bouts with suicidal thoughts and the all-consuming, chemically bereft outlook of 'why bother?' But the symptom that led me to make an appointment with a new general practitioner was memory loss. It was October of 2012.

My fancy new Upper East Side doctor invited me into her pink and grey office after a nurse took my vital signs, which were normal aside from my preexisting chronic low blood pressure. Dr. G asked me about my lifestyle since moving to the city. Was I drinking? was I smoking (and, if so, what)? was I exercising? Maybe having unprotected sex? Was I eating properly? And was I taking any new supplements? I provided satisfactory answers to most of these questions in between haranguing her with questions of my own such as, "I have MS, don't I? It's okay, you can just tell me. I know it usually starts in people my age…" and she decided to order some bloodwork.²

It's worth mentioning that prior to moving to Manhattan, I had lived for five years in Breckenridge, Colorado—a town situated nearly two miles above sea level. Most of the produce at my local grocery store had holes in it from the long journey up the mountain. Fish came in the form of canned tuna and previously frozen slabs of thawing salmon on ice, presented behind glass as fresh. The one sushi place in town was disgusting, such to the extent that I will no longer eat sushi in landlocked areas of the country. I resigned myself to eating a lot of frozen broccoli and five-dollar rotisserie chickens during those years. But relocating to one of the largest metropolitan areas on the globe was a culinary awakening. Everything was so fresh down at sea level! The tuna sashimi, translucently red and tender on the teeth; ceviches great and small; warm hoisin kissed dishes of flaky Chilean seabass atop crispy shallots and aromatic sticky rice. I'd gone on a seafood rampage after five years without freshness and I was about to pay the price.

Three to five business days later, I received a call from Dr. G. I was eating lunch— Japanese food. She said something about my heavy metal levels being off the charts, to which I said seems like a positive result because who doesn't like to rock? Dr. G was not amused: "You need to come back in tomorrow," she said. I dutifully obeyed, and in the same pink and grey office, she delivered my diagnosis with the very unfunny sentence:

"You have mercury poisoning."

¹ Diagnosed around twenty-two, my age in 2012.

² My aunt has multiple sclerosis and that's the worst-case scenario my mind arrives at when I have any amount of neuromuscular pain or a clumsy moment.

I paused. "Like Jeremy Piven??" Bless her, she didn't miss a beat. "Yes, I suppose like Jeremy Piven. Have you been eating a lot of sushi?" "Is three times a week a lot?" "Yes." "Then yes." at's when my personal journey to understanding the bazards of environment

And that's when my personal journey to understanding the hazards of environmental mercury began.

Jeremy Piven: A Public Case Study

"Jeremy Piven is a stupid dickhead." At least, that's what I said in 2008 after he pulled out of "Speed the Plow" on Broadway citing mercury poisoning as the cause. After all, what selfrespecting actor—whose past credits (though successful) had left him typecast as swarthy, shorttempered, pint-sized, and rash—would voluntarily relinquish the opportunity to work with David Mamet? The story seemed to write its own late-night jokes, kooky daily news headlines, and bad fish puns. Almost every news outlet ran a headline that read as or akin to "Jeremy Piven's Fishy Excuse".³ The fishiness in question centered around rumors of his cocaine usage and nightly carousing, along with industry murmurs that he had been trying to exit the play, even attempting to cast his own replacement, for several weeks. The producers of "Speed the Plow" filed for arbitration citing breach of contract.⁴

Piven's chief complaint was of exhaustion so severe he couldn't remember his lines, even though he had been performing in the show for nearly a month and a half. He was hospitalized and diagnosed with clinical exhaustion shortly before breaking his contract shortly ahead of the show's scheduled February 22nd close. Piven's personal physician advised him to stop performing immediately, issuing a statement to the press that cited Piven's often twice daily fish consumption and unspecified Chinese herbal supplements as key factors in his elevated mercury levels. Piven himself would later state that he had been eating fish, mainly sushi, twice a day for over twenty years and that his diet, "isn't good for anyone."⁵

Popular opinion toward Piven's departure was harsh; doctors and nutritionists alike shed their lab coats to refute the notion that eating tuna frequently might be harmful. Fellow actors were similarly unsympathetic: "I saw him like a month later at the Golden Globes, when he was supposed to be really sick," said his costar Elisabeth Moss.⁶ When asked for his comment on the saga, the play's director, David Mamet remarked, "My understanding is that is he leaving show business to pursue a career as a thermometer."⁷

³ "Jeremy Piven's Fishy Excuse". 2009. The Daily Beast.

https://www.thedailybeast.com/jeremy-pivens-fishy-excuse.

⁴ Itzkoff, Dave. 2008. "Jeremy Piven Leaves 'Speed-The-Plow' Because Of Health". *NYTimes.com*. https://www.nytimes.com/2008/12/19/theater/19pive.html?hp=&adxnnl=1&adxnnlx=1322512856-LLcuocFkhQUhi4RC+NHQ2Q.

⁵ White, Nicolas. 2013. "Elisabeth Moss: 'Jeremy Piven Was Highly Unprofessional'". TVGuide.com.

http://www.tvguide.com/news/elisabeth-moss-jeremy-piven-unprofessional-1066121/

⁶ White, Nicolas. 2013.

⁷ Itzkoff, Dave. 2014.

In August 2009, an arbitrator ruled in Piven's favor, stating that he did not breach his original contract with the producers of "Speed the Plow". Piven seemed elated, telling the New York Times online, "I'm just a theater actor who got sick, and was physically incapable of finishing my run. I had a real health scare, and now I can climb back on the stage and know that I'm strong and able to complete the mission. It's a great day."⁸

I do not wish to invoke Jeremy Piven as the zenith of California hypochondriasm, even though his story set back the public's—and, I hasten to say, my own—understanding of heavy metal toxicity for years to come. It made mercury poisoning seem like an illness of convenience rather than a serious threat to public health at large. He served, for many, as the only cultural touchstone they had regarding mercury poisoning.

Piven was tried, both in a court of law and the court of public opinion over his all-tooconvenient diagnosis. He lost the latter. I don't think anyone wanted to believe that his steady diet of raw fish could be reason enough to eschew his contractual obligations. But, the truth was hazier than that. Dr. Roberta F. White, chair of the department of environmental health at Boston University, told the New York Times that Piven's story might not be so far flung and, his symptoms, genuine. White remarked, "The higher the fish is on the food chain, the more methylmercury there is likely to be."⁹ After all was said and done, Jeremy Piven's body would recover but his career would not.

Epidemiology of Mercury Poisoning

I wanted to know exactly what was going on inside of me, so I began researching mercury's effects on the human body. Dr. G's expedient explanation didn't exactly make me an expert on my diagnosis. Even she wasn't completely sure if sushi was the only cause of my illness. What I found was that different forms of mercury are absorbed in different ways. One can be exposed to mercury through contaminated air, food, water, or from direct skin contact. Though it isn't often possible, experts caution that it's important to know which type of mercury you have been exposed to since not all forms of mercury enter the body the same way, if at all.

Suppose you decided to swallow a little bit of the silver mercuric goo inside a thermometer. Essentially none of it would make its way into your bloodstream through your stomach lining or intestinal tissue. However, if you were to take a big whiff of that thermometer right after you broke it open, about 80% of the mercury you inhaled would quickly worm its way through your lung tissue into your bloodstream. Once inside, the metallic mercury will remain, resting inside the soft contours of your brain and in your supple organ tissue for months.¹⁰ Worse still, studies have shown that once metallic mercury enters the brain, it is rapidly converted into an inorganic version of itself and is essentially 'trapped' in the brain and kidneys, sometimes for good. But it seems inorganic mercury poses more of a threat inside the body than out in the world. Inorganic mercury compounds are more prone to absorption through stomach tissue once

⁸ Itzkoff, Dave. 2009. "Arbitrator Rules In Favor Of Jeremy Piven In 'Speed-The-Plow' Dispute". Artsbeat.. https://artsbeat.blogs.nytimes.com/2009/08/27/arbitrator-rules-in-favor-of-jeremy-piven-in-speed-the-plowdispute/?mtrref=undefined.

⁹ Itzkoff, Dave. 2008. NYTimes.com.

¹⁰ Agency for Toxic Substances and Disease Registry. 1999. "Public Health Statement for Mercury." https://www.atsdr.cdc.gov/PHS/PHS.asp?id=112&tid=24#

ingested but its half-life is much shorter, exiting the body through urine, feces, and heavy exhalation.¹¹

When it comes to my friend methylmercury, it is the most readily absorbed through the gastrointestinal tract with about a 95% absorption rate. Say you've just enjoyed a few rolls of delicious tuna sushi. In about 45 minutes when the partially digested fish makes its way down to your large intestine and permeates the rest of your bloodstream, your intestinal lining gives way to the poison within your stomach contents. Methylmercury can also morph into inorganic mercury in the body, meaning it's especially pernicious and slow to remove.¹²

It seems the nervous system is incredibly sensitive to mercury and it doesn't take much to cause serious side effects. In poisoning incidents observed worldwide, people who ate fish contaminated with methylmercury or, in some instances seeds treated with an organic mercury compound, were found to have done permanent damage to their brains and kidneys. Their symptoms included "personality changes (irritability, shyness, nervousness), tremors, changes in vision (constriction of the visual field), deafness, muscle incoordination, loss of sensation, and difficulties with memory."¹³

There isn't much that can be done for someone with mercury poisoning. Most doctors opt to not treat it if a blood test shows a level that isn't critically high. Some have found success with the somewhat controversial, semi-holistic "urine challenge test" which I myself have undergone in more recent years after similar symptoms popped up again. This test, also known as chelation, is administered as inconsistent doses of chelating agents that work together to bind wayward blood metals into drive-by blood molecules, whisking it through of the bloodstream and out the urethra. ¹⁴If only it worked as well as it sounded. The chelation agents often provoked adverse reactions like nausea in participants and were found not to do much of anything but provoke the output of more urine.¹⁵ In light of this, many doctors now advise patients recovering from mercury poisoning to drink as much water as possible to flush out their kidneys.¹⁶

Through all of this, it appeared to me that mercury poisoning was difficult to diagnose unless the patient knew they had been exposed to mercury for a certain duration and, if so, which type? Though a simple blood test is all that's required to determine someone's heavy metal levels, a high number is just a high number without any history attached. And peeing in a bottle for twelve straight hours didn't provide any helpful results for me. Knowing what I now knew, I opted to keep my head down and my body free of tuna.

Recovery and Early Research

My own experience with recovering from mercury poisoning, though it didn't preempt my appearance in any Broadway plays, was slow and without much instruction. I found myself

¹¹ Agency for Toxic Substances and Disease Registry. 1999.

¹² Centers for Disease Control. 2009. "Mercury Fact Sheet for Clinicians."

https://www.cdc.gov/biomonitoring/pdf/Mercury_FactSheet.pdf

¹³ Agency for Toxic Substances and Disease Registry. 1999.

¹⁴ Ruha, Anne-Michelle. "Recommendations for Provoked Challenge Urine Testing." *Journal of Medical Toxicology* 9.4 (2013): 318–325. *PMC*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3846974/

¹⁵ Flora, S. J. S., & Pachauri, V. 2010. "Chelation in Metal Intoxication." International Journal of Environmental Research and Public Health, 7(7), 2745–2788. http://doi.org/10.3390/ijerph7072745

¹⁶ Bernhoft, Robin A. "Mercury Toxicity and Treatment: A Review of the Literature." Journal of Environmental and Public Health 2012 (2012): 460508. PMC.

exhausted all the time. The thought of getting groceries was enough to overwhelm me. I couldn't imagine trying to memorize multiple lines of dialogue—I had to write everything down. When I entered a room, I rarely recalled why or what for, which I found to be incredibly frustrating and my forgetfulness started making me cranky. Sometimes I would burst into tears upon making plans with friends because I felt I had nothing to offer them in my current state. My vocabulary dipped to a grade-school level; did you know that any noun can be substituted with the word "thingy" when under duress? One morning, I spent thirty seconds staring at the knobs on my shower because I had forgotten how to turn them on. I felt fortunate, for the first time, that I couldn't drive anywhere (I'd sold my car prior to moving to the city) since my vision, even with my glasses, remained unfocused. My eyes mounted a mutiny after about ten minutes of use, darting wherever they pleased so long as it wasn't on the sentence I was trying to read. The tremors became less frequent, decreasing to chin twitches, mostly in the evening, until I realized I had gone a full week without them. Unlike an episode of "Mr. Magoo", my early-onset senility wasn't a laugh riot.

I had dietary restrictions. Dr.G forbade me to eat sushi, at the very least not tuna sushi, for the foreseeable future. She gave me a magnet to stick on my fridge highlighting safe fish to eat in green, okay fish to eat in yellow, and species with a high mercury content in red.¹⁷ As a general rule, I was to stay away from fish that ate other fish; in short, every breed of giant tuna—Ahi, Bigeye, and Yellowfin, grouper, marlin, seabass, tilefish, swordfish, shrimp, and sharks. On the upside, I could have as much salmon as I liked, as well as sardines, scallops, trout, anchovies, codfish, clams, and flounder. I would miss my tuna sashimi terribly, but I decided I would miss my memory more. Though I did my level best to stay away from sushi, I occasionally fed my urges by eating freshwater eel nigiri and salmon avocado rolls.

Aside from staying away from most seafood for a while, I was instructed to drink as much water as I could hold in an attempt to flush my system—namely my kidneys and liver—of non-alkaline toxicity. Lemon water was a favorite. Not only does it supposedly promote alkalinity in the body, but it's somehow easier to choke down after six straight glasses of the pure stuff.¹⁸ I was urinating to the point of irritation; I was irritated that I was urinating so much.

As I started to feel better and regain some brain cells (at least, that's what it felt like), I started to get curious about my current predicament. The sentence that stuck in my mind from appointment with Dr. G was, "Don't eat fish that eat other fish." It sounded an almost ideological notion, not dietary. I had to know why. What I initially found was that I knew almost nothing about the dangers of mercury and its many iterations, namely that there were several different types of the element to begin with. In a 2005 journal article adorably titled, "Mercury—A Tale of Two Toxins", scientists outline the inherent differences between and dangers of mercury's assorted forms. They're quick to admit that mercury is quite an unusual element with a particularly complex chemical makeup. Mercury is, essentially, an elemental chameleon, assuming a variety of chemical forms including, "liquid elemental mercury and solid cinnabar in mineral deposits, gaseous elemental mercury in air, and mercury and methylmercury have the

¹⁷ "Mercury Levels In Fish Vs Vaccine Mercury". 2018. Whale.To.

http://www.whale.to/c/mercury_levels_in_fish.html

 ¹⁸ Medical science indicates that lemons don't cleanse the liver in any measurable way. Whatever. I liked the taste.
 ¹⁹ Bigham, Gary, Betsy Henry, and Brad Bessinger. "Mercury—A Tale of Two Toxins." *Natural Resources &*

Environment 19, no. 4 (2005): 26-71. <u>http://www.jstor.org.ezproxy.cul.columbia.edu/stable/40924607?pq-origsite=summon&seq=1#page_scan_tab_contents</u>

potential to harm humans but both behave almost entirely differently. With each bite of sashimi, it seems I was ingesting trace amounts of methylmercury. Each form has been observed to provoke distinct physiological responses and are regulated out of the body in different ways—mainly by voiding.

Studying an element whose behavior is considered by scientists to be elusive, is a compelling, even altruistic, notion but has proven to be something of a white whale²⁰ to the community at large for many years. What scientists have been able to pin down with regularity is the certainty that even small amounts of methylmercury and elemental mercury are harmful to most living organisms.

Elemental History

As I delved deeper into the history of mercury toxicity, I discovered, perhaps unsurprisingly, that mercury has been a contentious substance since it was first discovered. I'm about to lay it out for you in the simplest timeline I can muster. Elemental mercury, which is mercury in its most rudimental form, is found in deposits known as mercuriferous belts that tend to mirror the alignment of volcanic mountain ranges such as those found along the Mediterranean Sea, the coastlines of eastern Asia, Australia, and the U.S. west coast.²¹ But the largest mercury deposit in the world can be found in Almadén, Spain, a place the Phoenicians were mining as early as 700 B.C.

Mercury in this form is mined from cinnabar, a fire engine red mineral sulfide formed, generally near hots springs and volcanoes, when hot, geothermal water vapors rise through fractures in the earth's surface. Cinnabar was once prized in the ancient world for its striking red hue and used in the making of jewelry, dyes, and ornaments until it was discovered to be toxic, similar to how lead is no longer found in makeup and paint.²² Ancient Hindus thought of this "quicksilver" as an aphrodisiac, but their reasoning remains unclear.²³ Pliny the Elder referenced the rich cinnabar deposits in Almadén, stating that it was the area with the "best vermilion for tinting Roman togas" and to cinnabar itself as, "the only colour that in painting gives a proper representation of blood."²⁴ Pliny also spoke of minium, known colloquially as "red lead", a cheaper alternative to mercury-heavy cinnabar similarly derived from such deposits.²⁵

As it is a fact generally admitted, that minium is a poison, I look upon all the recipes given as highly dangerous which recommend its employment for medicinal purposes; with the exception, perhaps, of those cases in which it is applied to the head or abdomen, for the purpose of arresting hæmorrhage, due

²⁰ Also high in methylmercury

²¹ "Metal Sustainability". Ed. Reed M. Izatt. 2016. *Google Books*.

https://books.google.com/books?id=o8PCDAAAQBAJ&pg=PA201

²² King, Hobart Dr. 2018. "Cinnabar: A Toxic Ore Of Mercury, Once Used As A Pigment". *Geology.com*. https://geology.com/minerals/cinnabar.shtml.

²³ "Mercury—A Tale of Two Toxins."

²⁴ " Pliny The Elder, The Natural History, BOOK XXXIII. THE NATURAL HISTORY OF METALS. ". Perseus.tufts.edu. http://www.perseus.tufts.edu/hopper/text?doc=Perseus:abo:phi,0978,001:33.

²⁵ " Pliny The Elder

care being taken that it is not allowed to penetrate to the viscera, or to touch any sore. Beyond such cases as these, for my own part, I should never recommend it to be used in medicine.²⁶

It wasn't long before mercury's toxic qualities became apparent to others as well. It was being mined at an incredible rate before the ancient Greeks deemed it too hazardous for human consumption, however they still used it to treat certain skin conditions. More frightening still, the average life expectancy of the Roman slaves and prisoners sentenced to hard labor in the mines at Almadén was a mere three years, hardly just a causal link to illness. What I find most interesting is that only the slaves were reported to have been affected by the mercury fumes—local residents were seemingly unaffected.²⁷ As a result of these findings, slave labor was regulated, perhaps for the first time in recorded history, in an attempt to create better working conditions for the miners. Their typical work schedule of six hours a day, three days a week, was pared down to working four and a half hour days only eight days per month, a policy that would last for the next two centuries. Yet a number of miners were left unable to work, citing debilitating tremors and other neurological symptoms of mercury inhalation, a newly discovered workplace danger that poisoned the precious oxygen in the deepest, hottest portions of the mines.²⁸

As the rise of industrial era created a higher demand for mercury consumption, workplaces continued to enact measures to protect their employees. In 1978, the British Parliament passed an act prohibiting younger workers from "silvering mirrors with mercury."²⁹ A few decades later in France, The French Academy of Medicine achieved a goal they had been working toward since 1869—to protect hatmakers from the mercuric nitrate solution they used to soften coarse animal fur into finely felted hats.³⁰ The United States did not create similar legislation until 1941 after several cases of mercury-induced tremors were noted among hatmakers in the New York area. The public wasn't entirely sure what to call the symptoms these men were having so they dubbed them "the Danbury shakes." ³¹ A cute name for an often-incurable illness.

Despite growing recognition within the medical world that mercury and other heavy metals were toxic to the human body, the development and use of mercury-based products proliferated throughout the twentieth century; fingerprints, a new forensic science, were collected through the use of "gray powder to reveal latent prints and transfer them to paper."³² This powder, one part elemental mercury to two parts chalk, wasn't considered dangerous until after the end of the second World War when fingerprinting detectives were found to have been poisoned by mercury vapors emanating from the fine chalk dust they used on their crime scenes.

²⁶ " Pliny The Elder

²⁷ "Mercury—A Tale of Two Toxins."

²⁸ "Mercury—A Tale of Two Toxins."

²⁹ "Mercury—A Tale of Two Toxins."

³⁰ See also: the phrase "mad as a hatter" often thought to have originated from the undiagnosed symptoms of mercury poisoning among hatmakers, known medically as "erethism" (not just among hatmakers).
³¹ Merritt, Walter Gordon, "The Law of the Danbury Hatters' Case." The Annals of the American Academy of

Political and Social Science 36, no. 2 (1910): 11-22. http://www.jstor.org/stable/1011702.

³² "Mercury—A Tale of Two Toxins."

Near the end of the twentieth century, mercury was used to mine gold and silver, to manufacture chlorine, and in batteries. Today, most mercury-cell plants have been decommissioned in favor of greener technologies but mercury can still be found in batteries, pesticides, thermometers, medical office equipment, dental amalgam, skinlightening creams, certain vehicle switches and anti-lock braking systems, fluorescent lightbulbs and lamps, cosmetics, washing machines, gas ranges, chest freezers, children's toys, paint, pesticides, and vaccines. ^{33 34}

Abatement

You may be asking yourself, "What the hell? Why does everything have to have mercury in it?" Since about the mid-1980's, regulatory agencies like the Food & Drug Administration and the Environmental Protection Agency have been having the same thought.³⁵ Safety initiatives taken by governing bodies have included: "notification and labeling requirements; prohibitions on the sale of products for which alternatives were deemed readily available such as fever thermometers, dairy manometers, novelty items (toys, shoes), switches in automobiles, and thermostats; concentration limits on other products such as batteries and packaging; restriction on product disposal so that the products must be segregated from the solid waste stream and ultimately recycled..."³⁶ In addition to these measures, many states began sponsoring collection programs for thermometers, electronic materials, and old dental equipment such as the discarded metal amalgam used in fillings, a long-postulated detriment to human health.³⁷

Also in the 80's, scientists began to discover that mercury was present in the air we breathe. If anyone remembers learning about rain and the water cycle in grade school, you'll feel right at home in just a moment. The mercury cycle is only slightly different. It starts when man-made emissions from industrial processes introduce elemental mercury into the atmosphere. Once in the air, this mercury converts to inorganic mercury which literally rains upon the earth and mixes into the oceans where it is converted, again, into methylmercury and eaten by the lesser members of our food chain.³⁸ The problem is, once mercury is somewhere, it's everywhere.

Lessons Learned

About a month after my initial diagnosis, I received a letter in the mail from the New York State Department of Health which outlined common causes of lead and other heavy metal poisoning in older apartments like the one I was living in downtown.

³³ Pentland, William. 2008. "The Most Toxic Toys." Forbes.com. https://www.forbes.com/2008/12/16/toys-product-safety-biz-commerce-cx_wp_1216toxictoys.html#3c151732244c

³⁴ "Products That Contain Mercury - Local Hazardous Waste Management Program In King County". 2018. Hazwastehelp.org. http://www.hazwastehelp.org/mercury/contain-mercury.aspx.

³⁵ "ATSDR - Public Health Statement: Mercury". 1999. ATSDR.CDC.gov.

https://www.atsdr.cdc.gov/PHS/PHS.asp?id=112&tid=24

³⁶ "Mercury—A Tale of Two Toxins."

³⁷ "ATSDR - Public Health Statement: Mercury". 1999.

³⁸ "ATSDR - Public Health Statement: Mercury". 1999.

Though I cannot locate the letter either in my possession or online, it instructed me to check for peeling paint in my apartment and a few other construction-related hazards that weren't relevant to me. First of all, I wasn't aware the government was privy to my bloodwork. Second, it made me wonder why they weren't doing more to warn people about metal toxicity in the pre-war apartments many city dwellers call home.

But my apartment didn't make me sick. I was pretty sure of that. I had no paint peeling from my walls and I'd recently purchased a pricey air filter before I was even diagnosed. I resigned myself to the idea that my sushi addiction was the only cause of my elevated mercury levels and emotional lability. After all, it seemed like more was being done to keep populations safe from man-made environmental hazards such as this. My girlfriend, a dental hygienist is quick to remind me, "No one uses amalgam anymore. It's all resin composite fillings now."³⁹ But legislative changes are being made for the cause of mercury abatement, everywhere it seems, aside from our oceans. Clean fish don't grow in dirty water. Dirty fish eat dirtier fish until we're all a mess.

³⁹ Wilson, Madeline. Dental hygienist. Personal interview. New York, NY. April 22, 2018.