Catch-and-Release

Nicholas Caglianone

Are you aware of chemotaxis? Ron Harold was. He still is, even.

“Nicholas, are you aware of Chemo. Taxis?”

His idiosyncrasy, lovable at first and exhausting after two or three conversations, is to break uncommon words into their roots as he speaks. Chemo: chemical, chemistry. Taxis: arrangement, like taxonomy. Chemo. Half-second pause. Taxis.

“Yeah, I think so. Isn't that the thing where bacteria sort of move in the direction of a concentration gradient? They have some sort of internal second derivative, or -”

“Good man!” Now the word chemotaxis has entered the realm of mutual understanding, and Ron can drop the pause. He stared at me with small, shining blue eyes and a small, shining bald head. “Yes, it seems you know a thing or two already. You see, it was my doctoral advisor Julius. Adler. who discovered the mechanism. What he saw,” grabbing a napkin and pen to illustrate, “was a process with two discrete stages.”

He drew a crude bacterium on the bottom-left of the napkin as an oval with several wisps emanating outward to represent flagella. “First, they perform what is called a *run*,” drawing a diagonal arrow from the oval to the center of the napkin, “in which they move along nearly a perfect line segment. Then they ask themselves: is there more or less food around me?” He draws a second oval at the center with a little plus symbol next to it, and goes back to draw a little minus next to the first.

“Then they *tumble*. That is, they rotate and fly off in some direction, really any direction!” He draws an arc with an arrowhead to indicate counter-clockwise movement, and then a seemingly random, shorter arrow to another part of the napkin. There he draws the oval again with a larger plus sign. “Now as they find more and more food, what do they do?”

“They -”

“They tumble *less*. So what they have inside is something of a derivative, as you said, but not a second-derivative, as you also said. Just a first derivative. And by derivative here, we really just mean difference.”

He may have kept going on about the chemo. taxis. and Julius. Adler. Worse, I may have even enjoyed it, but at this point we were interrupted by a secretary with matters of bureaucracy to discuss with the new hire.

"Gale!" he shouted, interrupting himself. "This is Nicholas. *Caglianone*. from Belle. Harbor. in the distant land of Queens. He will be joining our laboratory as a postdoctoral re*search* scientist starting approximately right now."

He pronounced my name, I presume, correctly and in a faux Italian accent, despite my introducing myself as "CaGliO-n" with a hard G and a few missing syllables.

"Nick is fine," I said, rising from my chair to meet a woman who looked somewhat out-of-place in the twenty-first century – she had up-done hair that seemed a foot in height, and a blouse-and-long-skirt combination that made the total woman appear more as a television character than a naturally occurring phenomenon. Of course, the same could be said for Ron by way of his speech and dress (a shirt buttoned to the top despite the lack of a tie, covered by a mahogany vest), but he was nearly eighty years old. Gale had no such excuse, appearing to be at most thirty-five.

"I see Ron has wasted no time showing you his napkins," she said, with a smile both exaggerated and genuine.

"Go deal with your headaches," Ron said, allowing us to leave. "I'll see you in my office afterwards to discuss re*search*."

Indeed, we had not yet discussed re*search* (or as anyone else might say, *re*search) in any capacity. Ron had offered me a two-year appointment based solely on a fifteen-minute

interaction at a lab meeting when I was a graduate student. It has always been my theory that the only factor in the hiring decision was my recognizing a photograph of Paul Éluard on the wall in his office, although it is possible that he had read one or two of my publications.

Indeed indeed, I had no plans for research because I did not care for research. The decision to join a Nobel laureate's lab was a matter of pure circumstance, utter luck and youthful folly. First, I had no choice but to stay in New York so that I could remain near my girlfriend, who summarily left me weeks after I agreed to join the Harold group. Second, I had to get a job offer – and a good one, at that – because once I had that, my doctoral advisor would be forced to let me defend my thesis two years earlier than she may have otherwise preferred. Third and finally, I had fallen in love with Ron Harold.

No, no, not in that sense. I say fell in love rather than came to love because one cannot come to love in fifteen minutes. I instantly loved him as one instantly loves the woods – from the unconscious rather than the subconscious. Like the Christ, I saw myself in him and wished to become a self in which I saw even more of that self in him.

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"But I didn't snuff it."

Ask yourself: how much of what you read, hear or see do you remember within a given week? How about a year? Even after throwing away banal experiences like walking the dog or

brushing your teeth, I would guess the answer is considerably lower than 1%. Maybe a few scenes from a movie, a meeting at work, a joke from your dad, but very little else.

Now a harder question: how much of what you read, hear or see do you *memorize* within a given week? How about a year? How about a lifetime? Some of us are good with historical dates, birthdays, addresses; some smaller portion of us can memorize mathematical formulae, digits of pi, or even entire books of the Bible. But let's face it: that is far far less than 0.1% of what we have seen and had the opportunity to memorize.

All of those… well, all of those *somethings*… will disappear [?] like tears in rain.

Out, out sweet candle. Life is but a walking shadow. Creeps in this petty pace from day to day to the last syllable of recorded history… wait , no, that's the wrong order… I think it's… well, fuck.

I have always told myself that I have a poor memory, but I figure this isn't quite true. There are tricks I have for remembering, and I do not use them. I learned quickly that in mathematics and physics, one can memorize only two or three definitions and derive the rest of the necessary formulae from there. With history, the more facts you learn the more you can fill in a sort of mental calendar; Truman dropped the bombs on Japan, and given Eisenhower was a general in World War II, he probably became president shortly after, etc. etc. etc. As for birthdays, I am sure I could form the same sort of calendar. The difference is I don't give a shit.

“But I didn't snuff it,” he said as he walked in on me reading *A Clockwork Orange*, alone in the lunchroom. It was my third day, and while I was assigned a desk I was not yet assigned any work.

“You didn't what?”

“Oh, have you not gotten there yet? What's going on where you're at now?” he asked, pointing to the book.

“Oh, well he's watching one of the movies for the Ludovico technique. Do you remember that part?”

He looked over my shoulder, analyzing the font size and page structure. “Ah yes, I imagine it's around page 215 or so in your copy. But I didn't snuff it.”

Sure enough, it was. On page 215, Alex writes “But I didn't snuff it.” So there it was: Ron had some mental map of *A Clockwork Orange* that he could scale and translate to estimate the precise position of “But I didn't snuff it.”

The more I sat alone in that lunchroom, the more I learned about Ron's mental maps. There were literal maps – he knew the names of every major body of water in the world – as well as figurative maps of phylogenetic trees and chemical signaling pathways. He knew baseball division standings despite admitting to a disdain for America's pastime, he knew the latest video

games although he could hardly work a modern personal computer, and above all he knew literature and poetry.

A week or so into my time at the Harold Lab, I had picked up a book on the Belgian Congo titled *King Leopold's Ghost*, which he saw and seemed quite pleased with. "You know, the title is from an old poem, perhaps offensive to the modern ear, from Vachel. Lindsay. Would you like to hear it?"

I didn't have time to react before he entered the first stanza, reciting as if he had rehearsed in his office a few minutes before. I quickly pulled up the poem on my laptop to follow along and found that not a word was out of place.

The more time you spent with Ron the less he felt like a man, but rather like a laptop computer. The number of anecdotes in the category of the two above is impossible to enumerate because, simple as this, I do not remember them all. I haven't *memorized* any of them. After a month of such things, each witnessed feat of the limits of human memory becomes another birthday.

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The extent of this superpower became clearer when I actually began my re*search*, as I was damned to inevitably do. I recognized a sense of humor in Ron that was more obvious in his papers than in his speech – he enjoyed using bizarre analogies and playing around with strange

animals. I personally could not stand working with animals, but it was my unfortunate choice to join an experimental biophysics laboratory, so it was time for me to choose what absurd animal I would like to play around with for the next few years.

"Flukes, Ron!" I went to his office on the Monday of my third week with a few pages of notes. "I have spent a week searching to ensure no research has yet been conducted on communication in flukes. Here is all of the evidence that there is no evidence supporting or rejecting the hypothesis that flukes use conspecific communication!"

"Aha, *Paralichthys* (pause) *dentatus*. Good man! But I wouldn't be too sure – what you mean is that you couldn't find anything in English, I suppose."

"Well, I searched around in Japanese and I had Zhiyi check out the Chinese literature, but –"

"But you still don't know German, *Caglianone*! You know, German was once if only very briefly the *lingua franca* of science. Any good scientist had to know some German." He stood and circled his office until he found what he was looking for: Guckenheimmer's *Fisch*, a scientific anthology of all things Fisch, which is German for fish if the reader had not already guessed.

"*Fisch* was a must-read for zoology students," Ron said coldly. "That is," he turned a smile, "if you were a zoology student in the mid-nineteenth century. However, unless a new update has recently been published, the fish of *Fisch* are mostly identical to the fish of today."

So we searched *Fisch* for my fish, the fluke, which in German is Fluke. Under Fluke was a picture of a fluke and some German that Ron told me (to my great pleasure) said nothing of communication.

"What does it say?"

"It says it pairs nicely with dill! Onwards, break ground!"

"And how do I go about, you know, getting fluke?"

"I say you go buy them in Chinatown or catch them in the river," he said, ruffling through his wallet for a fifty-dollar bill. "As for the animal ethics board or whatever-the-fuck, you let Gale figure that out." He gave me the bill and gestured to the door with a cheeky grin.

"Thank you, Ron, but um… the tank? How do I set up a…" I realized I had thought a lot less about the idea than I had thought that I had thought about it, and I thought he must have thought more than I had thought because he seemed to have thought it was a fine idea. But he thought for hardly a few seconds before handing me two hundred-dollar bills, widening his smile, and gesturing towards the door again.

As I turned away to go speak with the time-traveling secretary, he called me back in – one moment! He listed desirable salt concentrations, nitrites, nitrates, ammonia levels, etc. that I would need for my flukenfisch to survive happily. How anyone might know that information off-hand is beyond me, but miles away from me was the idea that I should be able to listen and remember 15 numbers without taking notes. I had to stop him and grab a pen and napkin.

I rushed down to my quarter of the lab and handed Zhiyi (a grad student whose project I never came to understand) both the napkin and the money.

"Set this up for me by tonight."

"Nick, what the hell is this?" I felt bad for a half-second, realizing he had a project of his own that his academic future hinged on, but that half-second ended after about half-a-second.

"No time, no time. Thanks in advance!"

I traveled back up to the Heights to grab my fishing pole and dug my hands around in my worm farm for bait. At that point it was well past noon and I still needed to head down to Long Island City if I wanted to catch two or three flukes in time to bring them back to the lab. There's a small beach there, if you could call it that, by a dilapidated ex-ferry stop. I've only ever seen the beach used by Mexican parents letting their children play around in the East River; perhaps it's a cultural thing.

Fishermen, you know the serenity of sitting with your line out in the water knowing well that it might be hours with nothing on the other end. But as I stared across the river and saw on the other end, past the towers of Roosevelt Island, the window that I thought must be Ron's office, I realized that I had no idea how to test if *Paralichthys* (pause) *dentatus* have any form of conspecific or interspecific or antispecific or specific communication. A rare moment, a rare feeling: I had faith. I knew it would all work out. And I didn't catch a single fucking fish.

Ron had no trouble with me taking a few days to "set up," which really meant me not coming to work and trying very hard to catch fish (and harder to *not* catch body parts of Mexican children). It was Wednesday when I caught one fluke, and Friday by the time I had caught the second. I was quite pleased with myself and even more pleased with Zhiyi – he had done a wonderful job setting up the tank and I found the fluke seemed quite happy with the upgrade in water quality compared to the East River. Well, I should say I imagined as much. Have a nice weekend.

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One fun thing about learning if flukes can communicate with one another is that they can't. Rather, they have the means to communicate, but they *don't*. Showing that animals don't communicate is nontrivial because you might simply be missing it, or perhaps they don't communicate in captivity but do in the wild, or perhaps they communicate by means nonobvious to the observer; these are all fair concerns, but I have been watching these animals for three years

and I'm as certain as one can be certain of such uncertifiable things that these fish do not communicate.

In fact, I was certain of this after about three weeks, and I like to believe Ron was certain before I started. That didn't stop me, however, from dedicating my life and tens of thousands of taxpayer dollars to this question. That's right – if the reader is an American, I used some fraction of your income or property value or capital gains to buy sensors, cameras, fish food, sand, hydrophones, ultrasonic hydrophones and more to study something I was sure was nothing. The "more," in this case, was an illegal payment to some Mexican children to place Bluetooth-capable hydrophones and cameras at the bottom of the East River near the ex-ferry beach. Oh, and don't forget, you were also paying my salary!

Why did I waste so much time? Well, it was fun for both of us (all of us if you include the children). Collecting negative results is as fun as collecting positive ones so long as you are not looking to be rewarded, and I could not care less about reward. I never wanted to do re*search* in the first place, recall. Ron, with nothing left to gain in terms of reward after the Nobel, seemed at first like he was just glad to see another "good man" having fun.

The project is perfect because it has no natural stopping point, so long as no positive data is discovered. Perhaps they communicate with their young? You have to breed them. Perhaps they only communicate male-to-female? Or male-to-male? Or male-to-male in the presence of a female? Well, that's a lot of fishing you have to do to emulate those scenarios. And hey, maybe

the fish are too young? We'll have to go fishing for older ones, or better yet, wait for them to get older. When do you stop?

But this is too much about me; I have a habit of making everything about myself, but please bear with me. I swear I'm working on it. This is a story about Ron Harold, and I have gotten far ahead of myself.

Now, I do believe Ron would have stopped me in a different decade. Even in this decade, he twice told me that a good scientist should be constantly quitting. But he also thrice more asked me this question:

“Nicholas, are you aware of Chemo. Taxis?”

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A month into my study of flukes, Ron entered the lunchroom as I was sitting there alone with my coffee and laptop. I spent too many moments trying to conjure up topics for small talk or big talk in my mind, long enough that he sat by my side and managed to get out the first words:

“Nicholas, are you aware of Chemo. Taxis?”

“Well, um,” of course I was but he knew I was or at least I knew he knew I was. “Yes. I am aware of chemotaxis.”

“Good man! Now,” he grabbed a napkin once again and began the lecture, “it was my advisor Julius. Adler. who first discovered the mechanism.”

The illustration was nearly identical to the last, and the words differed so slightly that I felt I was at the Sunday showing of a high school play; the senior was a decent actor, but couldn't get his lines exactly right.

“First, they perform what is called a *run*.” I nodded politely as he drew that same bacterium and that same line. “In which they move along nearly a perfect line segment. Then they ask themselves: is there more or less food around me?”

“Then they *roll*. That is, they rotate and fly off in some direction, really any direction!”

I cocked my head. “Tumble,” I corrected him. He didn't look up at me, eyes glued to his napkin.

“So what they have inside is something of a second derivative.”

“Just a derivative, really,” I corrected again. I was feeling a vague discomfort, recognizing that I could not quite remember where I was. My heart began to race as I struggled

to ground myself, breathing, trying to read the text on the spines of the books that lined the walls. I let his voice slip into the background and thought I may need to excuse myself lest I faint, until I was saved.

Teresa de la Cruz entered the room – a stroke of luck. She was a senior post-doc with a hard interior and hard exterior, in that her face read at all times "confident and indifferent."

"Ron," she said as she attempted to move this immovable object.

"Ron, there's someone here for you. She says she's interviewing to join the lab as a graduate student. She's been waiting fifteen minutes."

That broke his trance. "Señ*orrr*ita de la C*rrr*uz!" He smiled wide as he spoke in an exaggerated Spanish accent, rolling his rs for so long that he ran out of breath. "I was just telling Nicholas about chemo. taxis."

"The student is waiting, Ron." There was no returning smile. Ron stood and walked towards the door.

"And it was my advisor, who –"

"C'mon, Ron."

They left together, Ron heading to his office next door and Te*rrr*esa heading somewhere else, leaving me alone in the room I was beginning to recognize again. As my heart rate slowed, I realized that Ron and I had only begun talking less than five minutes prior, meaning he had walked past the interviewee who had already been waiting for over ten minutes.

To tell me about chemotaxis.

Again.

I could hear his theatrical "interview" from his office, which in one sense was entirely in-character for Ron and in another sense seemed just slightly different from his usual performance. The student almost never got a chance to speak, as Ron covered topics ranging from chemical signal pathways in the development of rod cells to the lyrics of Neil Young's *After the Gold Rush* (he even played the entire song for her on his computer).

When the subject of her research interests was finally breached, she spoke so quietly that I couldn't quite make out what, if any, her interests were. When Ron's voice reappeared, it boomed: "have you met Nicholas. *Caglianone*?"

Lunchtime came around faster than it ought to have, as I had not been able to fully regain my faculties and failed to accomplish anything. Zhiyi walked in to grab me for lunch – we still did not quite care about one another, but we both got lunch at the university cafeteria each day

and preferred not to be alone. Before we could leave, however, Ron entered with the "interviewing" student, and Gale behind them. So many people in the lunchroom. No lunch.

"Fellows!" Ron announced. "This is Hideko. Takanaka. from Tokushima. Tokushima Prefecture. Shikoku. Japan." Standing next to him was a nervous young woman, wearing slightly-too-large slacks and a slightly-too-large tucked-in light blue polo shirt. Her small round face was made more round by large round glasses and short, bobbed black hair that itself managed to be round. Perhaps she was only five feet tall – or is, as she is still alive – and gave off no sense of compensating confidence. This, I can say certainly, is the proper means by which to distinguish a good graduate student from a bad one. A good graduate student is either large and confident or small and not too confident. All others, myself included, may be intelligent and even successful, but will probably be trouble in one way or another.

"She will be joining our lab as a graduate student starting next week," he said, to the apparent surprise of Hideko. Takanaka.

"If," Gale interjected, "she chooses to do so." Ron ignored the clarification. Hideko let out a nervous laugh.

I should interject here: I realize that the reader may be concerned that Ron had, at this point, completely lost his fucking mind. This is very far from the truth; the difficulty in telling this story is that Ron was already such a bizarre character that it was difficult to discriminate his baseline from abnormal behavior. Remember also that I had known him, at this point, for a very

short period of time. I was shaken during our chemo. taxis. repeat lecture not because it was unusual that he gave it, but more because he made two or three mistakes. The interview was strange not because he talked for so long about irrelevant nonsense, but because he might have otherwise played only the relevant portion of a song rather than the entire thing. The weirdest element of the entire day was him being a bit late to an interview. Wait, reader, before your worry sets too far in! There is so much story left to tell! Back to it!

"Her re*search* will involve the discovery of a communication strategy in *Paralichthys*. *Dentatus*." He smiled at me. "That's right, Nicholas will finally have a helper who actually wants to help him!" Zhiyi and I shared a genuine laugh, for the first time confirming the mutual understanding that we did not quite care about one another.

"Wanna grab food?" I asked the poor soul. She nodded, but I could tell she was not sure what she was agreeing to, not quite experienced enough with English to understand the slang and the accent.「食堂に行きたいですか」I asked. Now she nodded, appeared a bit impressed, and came with Zhiyi and me to the cafeteria.

Our conversation was, by necessity, in a mix of the simplest possible English and the simplest possible Japanese, so by necessity, it was the simplest possible conversation. As I failed to maintain register, switching back and forth between formal and casual Japanese, I saw a layer of nervousness slip off of her.

“Did you like the song?” I asked in slow, drawn out words. I whistled the melody of *After the Gold Rush*.

“It is a little funny. I don't know what he says. He sounds like a woman.” We both giggled. “But, very nice sound.”

After a few minutes of such banal talk, I felt I should ask (in Japanese so nobody else might understand, “will you join the lab?”

I must admit I didn't comprehend all of the words back, as maybe she thought I was more proficient than I truly was. However, the long and short of it was “yes, but.” The “but,” the「だけど」, the “da kedo,” I really didn't get. Then in English, she said:

“I feel more certain because you can talk with me.”

And so Hideko. Takanaka. from Tokushima. Tokushima Prefecture. Shikoku. Japan. joined the fluke project, and I became responsible for the success of a graduate student. This put a human-sized wrench in my plans because, if you recall, my goal was to fail, but I was not – am not! – so heartless as to bring others down with me.

But I have lost track of my subject again! Please, bear with me

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Ron Harold was christened Arnold Ronold Harold in wartime Louisiana, an origin that made itself apparent in his later life only when pronouncing a choice few words (Tuesdee, Thursdee). His father was Dr. Arnauld Ronald Harold, as *his* father, Arnold Ronald Harold, was a Francophile academic. Ron was Ron from birth to distinguish himself from his father, Arnie, and later on it would distinguish him from his son, Ronald.

His teachers tried to hold him back in the first grade because he was a retard who failed to answer any questions in class and didn't interact with the other children his age. Upon further inspection, they found quite the opposite – Ron was at a far higher level than his peers in terms of mathematics and language, but merely shut up as he remembered everything after the first time he heard it. As a result, they sent him to the third grade rather than back to the first.

After a long gap in which I have no clue what happened, Ron was expelled from high school in his senior year for tapping the landlines of the teachers. He would often say that he prefers to hire lab members who have been kicked out of one thing or another (I, for one, was nearly kicked out of middle school for making a teacher cry, but managed to convince the principal to let me stay).

He began his PhD program just as the Vietnam draft went into effect. When he was drafted, he quickly switched to medical school, exempting him from the draft. He then switched back to the PhD program before being drafted once more, this time choosing to finish medical school. Once the draft ended, he completed his PhD and became A. Ronold Harold, MD, PhD.

Now at some point in here, he managed to watch hundreds of movies, read quite a lot of novels, poetry, history, New York Times articles, etcetera, and memorize more or less all of it. It's a story that comes down to memory – this was functionally a man who memorized his way out of the Vietnam war and into earning a Nobel prize.

Ah, the Nobel prize! Ron was the first to characterize the operation of rods and cones in the vertebrate eye, and beyond that, to determine some of the developmental pathways for the arrangement of these cells in embryos. I, frankly, do not understand any of it, nor am I certain that it has led to any valuable medical or technological advances, but people in the 1980s were certain that this work one day *would* lead to such things. The fact of the matter is that it was very impressive, and more impressive yet, it was performed mostly by one man working at a state school in Minnesota.

Once you have a Nobel prize, you're not supposed to *stop*, although you or I might take the million dollars and go do something easier (but that's why you and I don't have Nobel prizes, unless the reader does, in which case congratulations that's very cool!). However, there is no good reason to pursue anything groundbreaking or useful; you are guaranteed any faculty position you want, enough money to hire a large staff, and little-to-no scrutiny on the quality of your future work. Might as well fuck around with fish.

See, I showed up more than forty years after the Nobel. After the initial “laureate glow” – my own psychological wonder at interacting with a celebrity scientist – wore off, everything was

just *silly*. Everything had been silly for decades, and everything continued to be silly; now it is both silly and sad, or in other words, pathetic, but at our point in our story it was generally more silly than anything.

Ron maintained this ambience of silliness by hiring a rotating cast of rowdy international characters, with no interest in whether or not they might work well together. I was the first American hired by Ron in over a decade, and when I arrived there were ten members representing eight countries on six continents. Nobody shared the same mother tongue (bar myself and the one British guy, Nigel, who I do not like and will not get back to later), and the only common interest was arguing at lunch over politics and the like. A lab built primarily on poorly-translated arguments is a silly thing indeed. Hideko was the eleventh – she did not replace a graduating student – making us the start of a concerning hiring pattern.

Widespread concern about Ron's mental state did not kick in, however, until a few weeks after Hideko joined, when Ron was slated to give a lab meeting on the pig heart as a model of the human heart. This infamous lab meeting, still referred to among us unambiguously as "the meeting," was perhaps a bit too silly. I have attempted to reproduce the bulk of the content here, although some of it is likely misremembered:

"Many of you are probably aware of the crusades, but you might not be aware of a contemporary singular crusade by one king of Norway. That is, the crusade of Sven. The. Christ. Bringer. Sven the Christbringer is a symbol of everything that can go right and simultaneously everything that can go wrong in Dark Ages.

“And there's an interesting question that I hope you have been asking for the last N years where N is a number between five and ten: what does it feel like to enter a dark age? And how do you know you are in one? If you were a man, or God forbid, a woman, in 500 Anno. Domini. Do you look around you and say ‘everything we used to do we are no longer able to do, what the fuck’s up with that?’ Or do you just chug along selling wicker baskets while it all goes on around you?

“Well I think the lot of us, as scientists, as re*search*ers, are in the former category. We used to know how valuable, for example, it is to study cancer and help people out when they are sick or poor. And now we have sort of decided not to figure that out anymore. So that's how it feels, I presume! I have been asking how that feels for sixty years, by the way, and now I think I have an answer!

“You might know, although I was the only one unfortunate enough to be around, that our great nation was once very excited about shooting little yellow people, gooks, zipperheads, on the other side of the world. But those were not the dark ages yet! I think we can see in Henry. A. Kissinger. P.H.D. a man who cared to do that, but also cared about scientific advancement. He funded this institution, you know. President. Richard. Nixon. even created the Environmental. Protection. Agency. Can you imagine a time when a Republican cared about such cuckoldrous things as protecting the environment? Even if maybe he wanted other people to shoot little yellow people.

“Sven the Christbringer was around in the previous dark ages, and he cared a lot about one thing: bringing Christ! As such, he really wanted to kill little brown people a few stories down from Norway in the Levant. But the difference is that he wanted to do it himself!

“He joined his own army on a very suboptimal boat trip from Scandinavia all the way around Europe, stopping at such useless places as Portugal and Sicily where Christ had already been brought. They had their fun raping the women and stealing bread and then continued their little journey. In the end they fought a great battle in Jerusalem, with Sven the Christbringer on the front lines!

“And they won their battle! But Sven was unfortunately wheeled home as he experienced a psychotic break likely related to the experience. Of this, there is little written.

“And so we can think of this difference – between a Sven the Christbringer and a Donald J. Trump. – as the difference between two sorts of hearts. The human heart and the swine heart.”

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There was more, and I'm not too sorry that I don't remember it. It was related to the actual science, and I really could not care any less about swine heart as a model for the human heart, and I imagine the reader loses little from my leaving it out.

After the meeting there was some clamoring; some expressed a concern that the start of his talk went on remarkably long, and others seemed worried that the actual scientific content was not up-to-date with modern swine heart literature. The general sense was that while the meeting was not impossibly out of character for Ron, it might be a good idea to watch out for any other strange behavior.

It was only my second time seeing Ron give a lab meeting, so I had little basis for comparison; Hideko had none at all, and was not sufficiently competent in non-scientific English to track the story anyway. As we were not worrying, we were out of place and terribly unwelcome in a lab of worrying people, so I asked Hideko if she wanted to come out fishing and give the others some space to freak out.

Hideko came up with me to the Heights to grab an extra rod and some worms and we took the train out to the ex-ferry beach. The bulk of our trip was in silence, but when we transferred to the Queens-bound she finally looked up at me and asked: “Is something wrong with Ron?”

“I don't… think so.” I said, trying to remember the correct Japanese grammar for my next sentence. “He was just being funny, and maybe people didn’t understand the joke.”

We sat in silence for another minute as we barreled across the river. When the train surfaced, Hideko looked at me again with concern bordering on dread.

“Did I make a mistake?”

Maybe it was the challenging meeting, or the subsequent unrest in the lab, or the fact that her “work” today involved bringing a fishing rod and a bucket of worms on the train.

“Have you ever been fishing?”

She was rightfully confused. I collected myself.

“Look. If you made a mistake, I made the same mistake as you.”

I don’t think that should have helped much, but it seemed to. We spoke in sentence fragments, one per every three or four minutes, as we caught and threw back a half-dozen sea robins. Whatever dread was on her face, and who knows, maybe mine as well, melted off into the East River and left behind simple round faces with simple round glasses penetrated by simple gazes stimulating simple minds with simple thoughts.

We brought our one fluke– her catch, I should say – back to a now-empty lab, almost as serene as the little beach. We lost time staring at the fluke swimming around and observing its new roommates; maybe they were communicating after all; before it settled in the sand and stayed put for long enough that we both stopped caring. And then we each went home.

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The next week Ron was missing without explanation, yielding a feeling akin to a stale smell; can you describe what is meant by a stale smell? I can't, and that's part of the analogy here, if you catch my drift.

The senior lab members grew more and more nervous with each passing day, as apparently Ron never missed a moment in the lab without a formal announcement. Once again, Hideko and I were too inexperienced with the man to conjure up worry at such a small thing as missing a week of work, and we insulated ourselves further from the life outside of our fishtanks.

But as it turns out, people are often quite good at pattern recognition, and they were right to be worried. It was Gale who revealed to us to little surprise that Ron had been diagnosed with the early stages of Alzheimer's disease. The lab would continue on with him in charge; the dementia was manifesting only as minor incidents of misspeaking and strange stories about the middle ages; until it was determined that he was no longer fit to manage. Then, we would all pack our things and go.

Once you have heard such disturbing news, it is hard to recall that almost nothing has actually changed. That is, when Ron returned on Monday, his Alzheimer's disease was precisely as severe as it was before he had left; that is, it was only noticeable in minor deviations from the ideal; that is, it was relatively meaningless. Still, everybody now lived with the knowledge that things would only get worse, and it was hard to look at the man without thinking of him as a walking charity case, a man reverting to a child, a man who might as well be dead already.

But really, seriously, he was beyond fine. He continued to operate far above the level of the average human being in almost every sense. Who else would you consider a shell of a man if he flubbed one word in a memorized passage from *Faust* (in the original German, at that)? Still, the chilling effect was enormous; students looked for other sources of guidance, postdocs began searching for new jobs, and Ron seemed quite unhappy with all of it.

It didn't take long for this worry to wear off, however; humans are simply too good at pattern recognition. It was hard for anyone to continue denying that his cognitive function and knowledge base were well above his or her own. If he decayed with a half-life of one year or so, then it would take two or three years for him to be on the level of our strongest post-docs. Even if he became a dim-witted man, that would still be better than almost any boss. It only took two weeks or so for everything to return to "normal," save a thin and uniform layer of uneasiness.

The flaw in both this analysis and the resulting behavior is that Alzheimer's disease is not log-linear, and one cannot compute fractions of cognitive function. This we will quickly see.

As for myself, I often thought about Hideko's question from the day of the meeting, and then about my answer, and then a lot more about my answer. If Ron began to lose it, I figured, all the better for me. I did love him, but if he became psychotic and *happy* (as it seemed may be the trajectory so far) then why worry about him? No, for *me*, this would be a net gain. If he began to forget, each update on my project would be an advancement even if no work had been done.

For Hideko, the stakes were higher. It would be up to me, then, to become her *de facto* advisor, which is a job, which is the thing I was not trying to do. My project was doomed to fail by design, so I spent a few days determining her skill set and reviewing some literature to come up with something for her to do "in parallel" with the fluke "work." She knew quite a bit of advanced mathematics, so I came up with a few problems that I had always dreamed of tackling but never had the ambition to.

"How can you use the Dirichlet series from analytic number theory to derive sampling patterns that can beat the Nyquist rate under relatively lenient restrictions?" That's a good question, although the reader likely does not appreciate that it is a good question. It's also a question you can fiddle with for five years, pushing out a few boring publications in mid-rate journals. It's also a question that almost nobody cares about or understands. By now you see that that is the point.

Once she was set, she was set, and I had no need to worry about her. Well, that is, in the academic sense I had no need to worry about her. We still spent our workdays more-or-less glued to one another, Hideko working on her Dirichlet series and I working on either elaborate and ridiculous fluke experiments or slacking off (codename "processing data"). Even on weekends I felt an obligation to engage her in American culture. While we slowly improved at our respective second languages, we never gained the expertise required to access one another's inner worlds, and that was more-or-less fine.

Processing data manifested in writing a novel – my hopeful EJECT button, should the lab dissolve sooner than expected. If I wrote the next great American novel, and then it became a movie with, say, Adrian Brody as the lead, and then I got royalties on the soundtrack streams, and who knows, maybe I wrote the next great American sequel, well then I would be set. Not to mention, there is no observable difference between coding and writing a novel if the screen is facing the right direction.

The next six months were perhaps the greatest in my entire life; in other words, they are not worthy of entrance into this story. Fast-forward, please.

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"Hideko-san, are you aware of Chemo. Taxis?"

I walked in on her morning tea time, which had been interrupted by a particularly manic Ron. She shook her head and he began his lecture. This time he flubbed fewer words, getting the script almost exactly right. I felt the panic descend upon me just as last time, but I breathed through it and came back to life well before the climax. The climax I do not recall, but I do remember his proud smile as he mentally applauded his own performance. Standing ovation!

I laughed and thought to tease Ron, as I was used to doing; we had formed such a relationship. "Subjecting another student to a chemotaxis lecture?" I giggled but received nothing in return.

What I had failed to realize was that this was not Hideko, or rather this was a different Hideko, because Hideko walked in just a moment after my swing-and-miss joke. I swear this was not a matter of my thinking all Japanese look the same, really; these two Japanese did not look similar at all, except superficially in the straight black hair and other features shared by most Japanese that I will not list, as I must be digging myself into a deeper hole by now. No, I really did not know because I did not pay attention to the face, as I almost never do, and I heard Ron say the name Hideko. I pray that you believe me.

This was, in fact, a new Hideko – a slightly taller woman with a more angular face and more angular glasses, as well as an Australian accent and the last name "Charleston" because she was not from Japan, but in fact, from Australia.

"Ah!" Ron exclaimed, as if just now noticing my presence in the room. "Nichloas. *Caglianone*. and Hideko. Takanaka. This is Hideko. Charleston. from Sydney. New South Wales. Australia. You two will have to fight over who is the greater Hideko and who is the lesser." Another proud smile.

This Hideko Charleston was a new student in our lab who would replace, again, nobody. While she seemed perfectly pleasant, she had a lot of resentment to peel off from the other members (save Hideko the Greater and myself) because she was costing us money. Rather, she was costing Ron's grant money, but that money was capped and every penny spent on an entire human salary could not be spent on, for example, Nigel's newest light sheet microscope. I

personally couldn't care less if Nigel had his newest microscope because he was a parasite, but that is neither here nor there.

To make matters worse, when the first Hideko joined it was under the understandable (though incorrect) assumption that a new post-doc (me) might want someone to work under him; while some lab members such as Nigel may have been bothered by the apparent waste, the resentment decayed as quickly as it arrived. Charleston, on the other hand, came with nothing at all to do except earn a paycheck and try without direction to earn a PhD. My generosity had been exhausted from taking on the one Hideko, and putting the finishing touches on my novel was taking longer than I had expected, so I exercised my best judgment and declined the opportunity to have her on our team. I had at first believed she might at least be a valuable companion for Takanaka-san, but when we learned that she did not actually speak any Japanese, she fell into the background and I could not tell you what she has done in the last two years.

It is not clear whether she was aware of Ron's Alzheimer's disease when she agreed to join the lab. It was clear that the next five members did.

Hiring six unnecessary lab members in six months is a good jumping-off point for a case study in cognitive decline. It is not that Ron was forgetting he had hired people, or even that Ron forgot people cost money; he would mention at meetings that these people were the direct reason that we could not upgrade our equipment or fix leaks in the refrigerator. He knew exactly what he was doing, and I would bet that he even knew it was a very bad idea.

But think, reader, with your emotional brain. Imagine you are a man who has wrapped his entire identity in two things: his brain and his laboratory. As his brain goes, he has no choice but to grab on to the last bits of what he can control. Yes, he says to himself, I am still in control. I am still in control of a *Nobel Prize-winning* laboratory. Each new member is a new exertion of control, as well as a new injection of youth – of novelty – into the space, as if to say "we aren't done, we're just getting started."

The new members, the adrenochrome shots, were not useful idiots. Thinking now with our logical brains, we can imagine the line in the *curriculum vitae*: "Studied under Nobel Prize-winning scientist A. Ronold Harold." One need not add to that line "who hired me to cope with his Alzheimer's diagnosis."

At this point, these managerial failures were the only obvious signs of Ron's decline. If you interacted with the man cursorily on a week-to-week basis, you would not necessarily notice that his brain had entered a "last-in first-out" data storage paradigm. If you asked him a specific question regarding the operation of a scanning electron microscope, he knew the line in the manual by heart and could tell you the page number on which to find it. He could still recite the bulk of *Nixon in China*. But if you ran into him the next day, he would not recall that he had already shown you the CSN music video or the nineteenth century rat brain anatomy reference. He might show you again, with the same enthusiasm as the last time, and he might smile proudly, and you might be a bit confused, but the underlying wealth of hoarded, encyclopedic knowledge was still far beyond what anyone would expect of a fully functioning brain. In fact, if you cared to advance your scientific pursuit, he might even be *helpful*.

If you were in love with Ron, however, the experience was less one of confusion and more one of paralyzing sadness. As you heard the same passage from Dante's *Inferno* in a language you could not understand or verify for its intelligibility, your heart might start racing and you might forget where you are until you see that big smile, and you might smile back from ancient reflex while your brain continues to send RED ALERT signals to the rest of your body. You might have to breathe deliberately, last-in first-out, until you remember how to breathe without your conscious mind.

Hideko was working through it all as if nothing was happening (Takanaka – you can forget Hideko Charleston exists because I do not have anything to say about her), because she did not need advice from Ron and did not follow his rambles well. I reduced my hours at work to about twenty per week as I began to focus on writing cover letters to send my book off to literary agents, and spent most of my time in the lab advising Hideko and conducting goofy, yieldless experiments on quite self-absorbed fish. But I still spent at least a bit of time with Ron over lunch each day because I loved him.

–

Time began to take a greater toll as the first-out began to overtake new information from the last-in category, digging further into the core brain and deleting state capitals. Two years from my entrance, I must have been the only one left who loved Ron – that was for the best.

Other members were either too resentful, too depressed by bearing witness to a decaying mind, or too objective-driven to waste time with someone so exhausting to speak with.

I lived alone in the final category of people who loved him too much to leave him to rot in his office, and thus I suffered the most psychic harm from watching him erode into something quite pathetic.

I remember walking in on him sitting alone and still in the lunch room one day; this anecdote is so clear in my mind, but its significance is quite subtle. I hope you can feel the impact I felt that day, but it may be difficult to convey in words – my apologies again. At the least, you may see why my writing was never picked up by a literary agent.

Enter Nicholas and Hideko Stage Left.

"Ah!" He awoke from whatever state he was in that required awaking from, then looked over at us. "If it isn't my favorite fisherman and fisher*woman*!" He had not forgotten the fish. A good sign.

He had in front of him a print-out of a publication and two napkins with scribbled mathematical expressions on them. The paper was the famous *Harold et al., 1981* – one of his crowning achievements and greatest points of pride. The equations scribbled on one napkin were precisely the equations written in the paper, while the other contained values of constants of

nature, laws of physics, and intermediate steps in deriving the equations on the first napkin from these base principles.

"Keeping up with the literature?" I asked, smirking and praying he would not take offense. Thank God, he smiled back!

"Yes, I think this paper is going to win its authors some serious awards!" We shared a laugh, and then he went back to scribbling on napkins. After thirty seconds of silence, he looked up at me again.

"I got up early this morning and nobody else was here. I thought it might be nice to re-derive the equations from this old classic here. See if I can do it without too much help. I bet even *you* do not recall the value of the Faraday constant!"

"I couldn't even tell you the order of magnitude."

"Well I got it up to five significant figures, first try!" He listed the value to five significant figures; I looked it up later and it was correct.

The exercise was not even out of character for a healthy Ron of two years prior. In fact, this is the exact sort of thing you might have walked in on him explaining to a student or visitor; it was far more welcome than a lecture on chemotaxis. But this time was ever so slightly different. This time he was trying.

“Sounds like a good exercise. You know, I’m always telling Hideko to go back to base principles. How far have you gotten?”

“All but one. You know, I was able to derive the probability density function of the Boltzmann distribution yesterday?”

“Why did that come up?”

“I just felt like it.”

The two of us shared a knowing look. Usually when people say “knowing look,” I imagine a look that implies the two are in the know on some conspiracy; I don’t mean that. I simply mean that we shared a look in a way that made it absolutely clear that each of us knew everything going on in the other’s mind. Do you feel the impact of this situation yet, or is my writing too poor to convey the order of magnitude?

I stood and walked over to sit down next to Ron and look at the napkins. I caught the odor of an elderly man; all elderly men smell quite distinctly like elderly men, and perhaps I never noticed the scent before on Ron, but it was at the front of my mind at that moment.

“So this is the equation you’re struggling with?” I pointed to the last expression on Napkin One, and he nodded. “Do you mind if I try along with you?” I grabbed a napkin of my

own and started trying and failing. I even called over Hideko to help out at one point; she made some progress beyond what I could, but we got exactly as far as Ron had on Napkin Two.

I waited in silence for a bit, then laughed. “Man, this Harold guy was a fucking genius.” We were doing a lot of laughing that morning, you see. Then Ron looked straight up at the ceiling.

“Got it.”

“Got it?”

“Got it. You see the paper is from Harold *et al.*, and those *et al.* contributed quite a bit to the work.” He lowered his head and faced us. “The experiments were my piece – I didn’t bother with any of these equations at the time. That was all one of these *et al.* guys. Jonathan Grisler, now long in the dirt. But I do remember one conversation very well now.

“He said ‘Aaron,’ as he called me, A. Ron, get it? A stupid joke. I really hated that guy. ‘Aaron, I couldn’t figure out a solution to that differential equation. The more I look, the less I find it.’ Yes, he said exactly that. ‘The more I look, the less I find it.’ So, Nicholas, you tell me what you do.”

“You give up?”

“Good man! And John, what do you do after Nicholas gives up?”

“You linearize the equation and solve it by Fourier series substitution,” Hideko said

“Good man!” And so we did it and got the right answer, finished our tea, and left to go “work,” satisfied with our accomplishment.

Once we were out of earshot, Hideko looked up at me and said in Japanese: “He called me John.”

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It wasn’t long after that incident that Ron’s presence in the lab began to trickle down from sixty hours per week to forty, from forty to thirty, and eventually to about ten. You might see him on a Monday or a Friday, perhaps even at his lab bench reproducing results from old *Harold et al.s*. On paper, he is still in complete control of the lab; any admission of his inability to manage could lead to a shutdown; but Gale is *de facto* in control of finances, and we are *de facto* in control of ourselves.

With the right question and proper technique, you might be able to navigate around his monomaniacal focus of the day and get some help. Maybe you can't figure out the best non-specific collagen dye – it's in that brain still. You just have to refocus the conversation away from Jimmy Page a few times. Maybe you want a reference for the discovery of a certain

chemical signaling pathway – he might give you title, authors, journal, date and page numbers if you can stand to watch a few YouTube clips from Akira Kurosawa movies. Few people bother to try and he largely remains alone, a crippled king wandering his throne room, unaware that his advisors were ignoring his orders.

I try because I still love him. I love the stories about Jimmy Page and the Kurosawa clips. I love whatever's still beneath those obsessions. I said at the beginning of our story that I saw myself in Ron when I first met him, that I wanted to work to see more of myself in him. Every day I still do, even as everyone else works to hardly see him at all.

Hideko has already published two articles, second author Nicholas Caglianone, final and corresponding author A. Ronold Harold, MD, PhD. I've succeeded in publishing nothing, my novel included.

We still go fishing just to catch and release.