

WHAT THE LIGHT CARRIES

A Book of Temporal Correspondence

by David Boles

David Boles Books Writing & Publishing

New York City

What the Light Carries: A Book of Temporal Correspondence

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This is a work of fiction. Names, characters, businesses, institutions, places, events, and incidents are either the products of the author's imagination or used in a fictitious manner. Any resemblance to actual persons, living or dead, or actual events is purely coincidental. The Waste Isolation Pilot Plant (WIPP) is a real facility; the panel proceedings depicted in "The Marker" are a fictional reconstruction inspired by the actual Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the WIPP, published by Sandia National Laboratories in 1993. Some real persons, places, and institutions appear in the text where historical or documentary context requires them; all dialogue attributed to named persons in these contexts is fictional.

First Edition

Cover design by David Boles

For Janna, who sends and receives

*What then is time? If no one asks me, I know what it is. If I wish to explain it to him who asks,
I do not know.*

— Augustine, *Confessions*, Book XI (c. 400 CE)

The distinction between the past, present and future is only a stubbornly persistent illusion.

— Albert Einstein, letter to the family of Michele Besso (March 21, 1955)

*A Letter always feels to me like immortality because it is the mind alone without corporeal
friend.*

— Emily Dickinson, letter to Thomas Wentworth Higginson (June 1869)

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PROLOGUE

A NOTE ON DISTANCE

The light that touches your face right now left the sun eight minutes ago.

This is not a metaphor. It is a measurement. One hundred and fifty million kilometers of empty space, crossed at 299,792 kilometers per second, and still the transit takes eight minutes and twenty seconds. The warmth on your skin is not the sun as it is. It is the sun as it was. You have never seen the present sun. No one has. No one can. You have only ever seen its ghost, eight minutes departed, arriving with the confidence of something that believes it is still alive.

Every act of writing shares this property. The moment a word is set down, on paper or in phosphor or in the careful arrangement of ink on a pressed index card, it begins traveling away from the person who wrote it. Not at the speed of light, but at the speed of time, which is the only speed that counts and the one we are least equipped to measure. A sentence written at noon will be read by someone, even if that someone is the writer, at a moment that is not noon. The gap may be one second. It may be a thousand years. But the gap exists, and in that gap, everything changes. The writer ages. The reader, who did not exist at the moment of composition, comes into being. The words, which meant one thing at noon, arrive carrying a meaning the writer did not pack.

This is a book about that gap.

Consider the grocery list. A woman writes it at her kitchen table on a Tuesday morning: eggs, bread, the good olive oil, not the one with the green label. She will read it four hours later under the fluorescent lights of a supermarket, standing in an aisle that smells of floor wax and refrigeration. The version of herself who reads the list is not the version who wrote it. Cells have divided and died in the interval. Memories have been consolidated during an afternoon nap she did not plan to take. A conversation with a neighbor has shifted her mood in a direction the morning self could not have predicted. The grocery list is, in the most literal biological sense, a letter from a past stranger to a future stranger who happens to share her name and her Social Security number and her preference for the olive oil without the green label. The message arrives. The recipient has changed. This is the condition of all correspondence, and we pretend it is not because the alternative is to admit that every sentence we write is addressed to someone we cannot know, even when that someone is ourselves.

Not the gap in the way science fiction means it, with polished capsules and temporal paradoxes and someone stepping out of a machine into a world that smells like ozone and regret. The gap as it actually operates, in kitchens and cockpits and hospital corridors. The gap between writing and reading. The gap between sending and arriving. The gap between the world that existed when the words were chosen and the world that exists when the words are received.

Every letter is a letter from the past. This is not a philosophical position. It is a physical fact. The moment you seal the envelope, the moment you press send, you have created an artifact of a world that no longer exists, addressed to a world that does not yet exist, and you have trusted the space between those two worlds to deliver your meaning intact. Sometimes it does. Mostly it does not. The delivery is always late, because all delivery is late, because language moves slower than the world it describes.

What follows are twenty-one acts of correspondence, arranged not by date or by author but by the size of the gap each one attempts to cross. The first spans one second. The last spans light-years. In between, the gap widens from minutes to hours to seasons to centuries, and as it widens, the nature of the correspondence changes. A surgical dictation recorded in real time is a different kind of letter than a set of instructions carved into stone for beings who may not share our alphabet or our concept of danger. But both are attempts to send meaning forward, and both must contend with the same problem: the future is not listening the way the sender hoped.

These are not wisdom dispatches from a better tomorrow. Nobody here has answers. The letters in this book are written by people who are wrong as often as they are right, petty as often as they are generous, and confused almost all of the time. Their only shared quality is that each one believed, at the moment of writing, that someone on the other end would read them. Whether anyone did is a different question, and the book does not always answer it.

A note about the title. Light is the fastest thing in the universe, and it is always arriving from the past. The starlight you see tonight left its source years or centuries or millennia ago. The cosmic microwave background, that faint static you can hear between radio stations if you listen in the right way, is a message from 13.8 billion years ago, sent before there were ears to receive it, still arriving, still legible to instruments that did not exist when the message was composed. Light carries everything: heat, information, the evidence of stars that have already died. It is the universe's oldest postal service, and it has never lost a letter. It has only ever delivered them to recipients who were not yet born when the letter was sent.

That is the condition of all correspondence. That is the condition of this book. And if you are wondering whether a letter must be written on paper to qualify as a letter, the answer this book gives is no. A letter is any encoded message intended for a future recipient. The definition is broader than you think. The book will test how broad.

The pages that follow were written before you read them. By the time you finish this sentence, it will already be in the past.

You are the future these words were sent to find.

PART I
THE BLINK

Temporal range: one second to five minutes

"Dictation"

Temporal gap: one second

Operative dictation, emergency aortic repair. St. Aldric Memorial Hospital, Department of Vascular Surgery. Case number 2024-V-00387. Attending surgeon: Dr. Reva Lenkov. Date of procedure: February 11, 2024. Dictation begun at 22:47 EST.

Patient is a sixty-three-year-old male presenting with acute Type B aortic dissection, hemodynamically unstable on arrival. We are approximately forty minutes into thoracic endovascular repair. I have established bilateral femoral access and the stent graft is positioned at the level of the left subclavian origin. Fluoroscopy confirms placement. I am preparing for deployment.

The tissue is not what I expected. The aortic wall at the proximal landing zone shows more extensive degeneration than the CT suggested. Calcification is irregular. There is a quality to the tissue I want to describe accurately for the record, so I will say it plainly: it feels like wet newspaper. This is not a term I would use in a published case report. I am using it here because the version of me who reviews this tape will understand what I mean, and the clinical vocabulary does not have a word for the specific kind of fragility I am feeling through the wire. Friable is close. Friable is not enough.

Deploying the proximal component now. Slow inflation. Patel, hold retraction. Good. Balloon is conforming. No evidence of Type I endoleak on initial angiography. Let me look at this again. Run the fluoro. Okay. I am satisfied with the seal.

I should note for the record that Mr. Sorensen's wife is in the family waiting area with their adult son. I spoke with both of them before we brought the patient back. The wife asked me if her husband was going to die tonight. I told her we were going to do everything we could. Which is what I always say because it is the only honest answer, and because the honest answer is not the same as a comforting one. She understood this. She has the face of a woman who has been receiving honest answers her whole life and has never once found them comforting.

Moving to the distal component. Advancing the catheter. I want this on the record because the anatomy here is presenting a challenge: the iliac is tortuous on the right, more than the imaging indicated, and I am having to negotiate a series of turns that are testing my patience and the structural limits of the delivery system. I can feel the catheter wanting to buckle at the iliac bifurcation. Slow down. Slow.

I will say this for the record as well: there is a particular quality of resistance that a tortuous vessel gives you through the wire, a kind of grudging compliance, where the anatomy permits your passage but does not welcome it. You learn to read this the way a sailor reads a current. Too much force and you perforate. Too little and you stall. The correct amount is a negotiation conducted entirely through your fingertips, and it is not something any textbook has ever successfully described. I have tried. I reviewed a chapter on endovascular technique for the Rutherford's third edition and I spent two paragraphs attempting to articulate what "the right amount of force" means. My editor wrote in the margin: "Can you be more specific?" I could not. I still cannot. The catheter is advancing. That is as specific as the language allows.

There is a moment in every operation, and I have been doing this for twenty-six years so I am qualified to say this, when the surgeon becomes aware that the patient on the table is not a problem to be solved but a person who ate breakfast this morning. I do not know what Henrik Sorensen ate for breakfast. I know he has a scar on his left forearm that looks like a childhood burn, and I know his toenails need cutting, and I know that his wife, when she asked me if he was going to die, was not asking about the statistical probability of mortality in emergency TEVAR procedures. She was asking whether the man who presumably sat across from her at breakfast this morning would sit across from her tomorrow. I could not answer that question at the time. I cannot answer it now.

Distal component deployed. Checking for endoleak. Completion angiography running. I see good flow in the true lumen. False lumen is thrombosing. This is what I wanted.

Patel, how are we on volume? Good. Pressure is holding. I'm going to do one more angiographic run to confirm the seal at the overlap zone. Let me look.

There is a sound the angiography suite makes when everything is quiet, a kind of low electrical hum that you stop hearing after the first year of training. I am hearing it tonight. I don't know why. It may be because the room is unusually still, or it may be that I have reached the part of the case where the critical decisions have been made and the hands are doing what the hands know how to do, and the brain, released from its operational obligations, starts noticing things it usually ignores. The hum. The smell of the drapes. The way the scrub tech anticipates my next request before I make it, which means either I am predictable or she is exceptional. Probably both.

Final angiography confirms successful exclusion of the dissection. No endoleak. Hemostasis achieved at both femoral access sites. Estimated blood loss: four hundred milliliters. The patient is hemodynamically stable. I am closing.

I want to add one final note. This is not for the medical record. This is for the version of me who will sit in her office tomorrow morning, reviewing this dictation, drinking coffee from the mug her daughter painted in the second grade that says WROLD'S BEST MOM with the transposed letters that I have never corrected because the error is the point. Tomorrow morning, I will listen to my own voice describing wet newspaper and tortuous iliacs and a wife's face, and I will hear things I did not know I was saying. I always do. The tape knows more than the surgeon.

I have been dictating for twenty-six years. In those years I have produced, by rough estimate, something like four thousand operative reports. The early ones, from my first year as an attending, are clipped and mechanical, all data and no observation, because I was afraid that anything beyond the clinical would be used against me in a deposition and because I was twenty-nine years old and I thought that professionalism meant the absence of personality. The later ones are different. The later ones include the smell of the drapes and the sound of the angiography suite and the quality of the tissue and the look on a wife's face, because I have learned, in twenty-six years of operating, that the clinical record and the human record are not the same thing, and that the clinical record is what protects you in a courtroom, and that the human record is what you need at 6 AM on a Tuesday when you are alone in your office and you cannot remember why you chose this work, and the tape reminds you. The tape says: here is a woman who was standing in an operating room at eleven o'clock at night, describing what she saw, and she was not bored, and she was not indifferent, and the tissue was friable and the catheter wanted to buckle and the wife's face was what it was, and you were there, and the being there was the reason.

That is what dictation is: a letter from the version of myself who is inside the case to the version who has already left it, and the two of us never quite agree on what happened.

Dictation concluded at 23:41 EST. End of operative report.

• • •

"Runway Four Left"

Temporal gap: ninety seconds

The following is an annotated partial transcript of the cockpit voice recorder from Meridian Regional Airlines Flight 4412, a Bombardier CRJ-200 operating as a scheduled passenger service from Evansville, Indiana (EVV) to Chicago O'Hare (ORD). Date: November 9, 2019. The aircraft was on approach to Runway 4L at O'Hare in instrument meteorological conditions. The transcript covers the final ninety-four seconds of recorded audio. Time stamps are in Central Standard Time. Speaker designations: CAP (Captain Lewis Endicott, 54, 18,200 flight hours); FO (First Officer Tomasz Brel, 34, 6,100 flight hours); RDO (radio communications with Chicago Approach and O'Hare Tower); CAM (cockpit area microphone, ambient sounds).

Annotations are not part of any official record. Their author and their purpose are neither acknowledged nor explained.

...

22:14:07.3 — CAP: Localizer alive.

22:14:08.1 — FO: Confirmed. Localizer captured.

The exchange is textbook. Two men confirming a fact to each other. The localizer beam, invisible and narrow, extending from the end of the runway like a thread pulled taut through cloud. The airplane has found it. This is not remarkable. This happens ten thousand times a day at airports across the world. What is worth noting is only the speed of the reply: 0.8 seconds between the captain's call and the first officer's confirmation. Tomasz Brel is paying attention. He is awake, he is engaged, he is exactly where training expects him to be.

22:14:11.6 — CAP: Glideslope alive.

22:14:12.9 — FO: Confirmed.

22:14:14.0 — CAP: Gear down, flaps twenty.

22:14:15.4 — FO: Gear's coming down. Flaps twenty, selected.

22:14:18.2 — CAM: [Sound of landing gear extending. Three distinct mechanical sequences: nose gear, left main, right main. Duration: 4.1 seconds.]

In the cabin behind them, forty-seven passengers hear this sound and assign it a meaning: we are almost there. Landing gear is legible to civilians. The hydraulic groan, the thump of the gear

locking into place. Everyone knows what that means. Everyone relaxes a quarter of an inch into the seat. The airplane is getting ready to stop being an airplane. In sixty seconds, if everything goes right, it will be a bus with wings.

22:14:23.8 — FO: Three green. Gear is down and locked.

22:14:24.5 — CAP: Flaps forty-five.

22:14:25.1 — FO: Flaps forty-five, selected.

22:14:29.4 — RDO (O'Hare Tower): Meridian forty-four twelve, O'Hare Tower, runway four left, cleared to land. Wind zero-three-zero at one-eight, gusting two-four.

22:14:33.1 — CAP: Cleared to land, four left, Meridian forty-four twelve.

Gusting twenty-four knots. Not unusual for Chicago in November. Not pleasant, either. A crosswind gust at that speed, arriving at the wrong moment, can displace the airplane laterally by a full wingspan in less than two seconds. Lewis Endicott has landed in worse. He has landed in winds that would make a reasonable person reconsider the entire premise of air travel. But tonight his hands make a small adjustment on the control column that is visible on the digital flight data recorder as a 0.4-degree deflection of the ailerons, and the adjustment is two seconds earlier than it needs to be. He is correcting for a gust that has not arrived yet. Eighteen thousand hours will teach you that.

22:14:38.7 — FO: Approaching minimums. Airspeed one-three-five.

22:14:40.2 — CAP: Looking.

He means: I am looking for the runway. At this altitude, in these conditions, the runway should be becoming visible through the cloud layer. The approach lights should be appearing in the windscreen, that cascade of white and red that runs out from the threshold. "Looking" is a compressed statement. It means: I have shifted my scan from the instruments to the outside world, I am searching for the visual references that will allow me to continue below decision altitude, and I will tell you what I see in the next four seconds.

22:14:41.9 — CAM: [Sound consistent with aircraft encountering moderate turbulence. Duration: 1.3 seconds.]

22:14:42.6 — FO: Airspeed.

The first officer's call is one word. It means the airspeed has deviated from the target. On the flight data recorder, the airspeed fluctuation at this moment shows a drop of seven knots, followed by a recovery of four knots, followed by a second drop of eleven knots. The second drop coincides with a wind shear event that the aircraft's onboard detection system does not annunciate because the system's threshold is set at fifteen knots, and this event reaches fourteen. One knot below the alarm. One knot is approximately 1.15 miles per hour. The distance between alert and silence.

What the flight data recorder also shows, though no one will read it unless someone goes looking, is that Tomasz Brel's control inputs during this 1.6-second interval are textbook. Left aileron deflection to correct the lateral displacement, simultaneous right rudder to coordinate, a slight forward pressure on the column to maintain airspeed. The inputs are small. The largest is a four-degree aileron deflection, which is less than you would use to steer a bicycle around a pothole. But they are precisely timed and precisely proportioned and they prevent the aircraft from drifting forty feet left of the centerline, which at an altitude of one hundred and twelve feet above a runway in instrument conditions is the difference between a routine approach and a front-page photograph of wreckage.

Tomasz does not know he has done anything remarkable. He will not mention these 1.6 seconds to anyone, including the captain, including Alina, including himself. They will pass through his nervous system and into the category of things the body knows and the mind does not bother to record.

22:14:43.4 — CAP: I see it. Landing.

22:14:44.0 — FO: Checked.

22:14:44.7 — CAM: [Increase in engine sound consistent with power application.]

22:14:46.1 — CAM: [Sound of automated callout: "One hundred."]

22:14:48.3 — CAM: [Sound of automated callout: "Fifty."]

The automated callouts are the airplane talking to itself. Radio altimeter, measuring the distance between the wheels and the ground with radar pulses that bounce and return faster than a human nerve can fire. One hundred feet. Fifty feet. The numbers are counting down to the transition from flight to ground. Not an event. A change of state.

22:14:49.6 — CAM: [Sound of automated callout: "Forty."]

22:14:50.2 — CAM: [Sound consistent with significant wind shear event. Lateral acceleration data indicates 0.38g lateral displacement.]

22:14:50.4 — CAP: [Expletive.]

22:14:50.9 — FO: Go around. [Spoken simultaneously with:]

22:14:50.9 — CAP: Going around. TOGA.

The decision is correct and it is instantaneous and it belongs to both of them. The captain calls for takeoff/go-around power at the same moment the first officer calls for the go-around. They speak over each other. On the transcript, the time stamps are identical: 22:14:50.9. In accident investigation reports, this is called a coordinated response. It means the crew was functioning as a unit. It means the training held. Not every crew gets there. These two got there.

22:14:51.7 — CAM: [Sound of engine spool-up. Increasing N1 values recorded on FDR.]

22:14:52.4 — CAM: [Sound of automated callout: "Thirty."]

22:14:52.9 — FO: Positive rate.

22:14:53.6 — CAP: Gear up.

22:14:54.1 — CAM: [Sound of landing gear retraction.]

22:14:55.3 — RDO (CAP): Tower, Meridian forty-four twelve, going around.

22:14:57.8 — RDO (Tower): Meridian forty-four twelve, roger, fly runway heading, climb and maintain three thousand.

22:15:00.4 — CAP: Runway heading, three thousand, Meridian forty-four twelve.

They land on the second approach, eleven minutes later, in winds that have decreased by four knots. The touchdown is firm. Tomasz Brel, in the right seat, writes the landing time in the flight log: 22:26 CST. He writes nothing else. He does not note the go-around, because go-arounds, in the administrative grammar of aviation, are nonevents. They are what is supposed to happen when conditions are not right. They are the system working.

In the terminal, Tomasz calls his wife, Alina. The call lasts two minutes and forty seconds. He tells her the flight was fine. He tells her he will be at the hotel by midnight. He does not mention the wind shear or the lateral displacement or the fact that he and the captain said the same word at the same time. He does not mention these things because they are his work, and his work does not follow him to the phone. "The flight was fine" is not a lie. It is what happened, minus the parts that only matter if you were there.

What the cockpit voice recorder preserves, and what Tomasz Brel does not write in the flight log, is the sound of his breathing between 22:14:50.2 and 22:14:53.6. Three and four-tenths of a second. The data recorder shows that his respiratory rate increases from fourteen breaths per minute to twenty-one during this interval, then returns to fifteen within eight seconds. This is not fear. This is the autonomic nervous system doing its job, flooding the body with precisely enough adrenaline to sharpen the hands and clear the eyes and then withdrawing like a tide that knows exactly where the shore is.

Tomasz Brel does not know this letter exists. The CVR tape will be overwritten on the next flight, as it always is, the recorder holding only the most recent two hours of audio in a continuous loop. This transcript is a reconstruction. The ninety-four seconds lived once, in real time, and were never heard again. They are being heard now only because someone decided they were worth preserving, which is a decision that Tomasz would find strange, because nothing happened. They flew the approach. The wind gusted. They went around. They landed. Everyone walked off the airplane and into the terminal and none of the forty-seven passengers knew they had been part of a letter that would never be sent.

The gap is ninety seconds. The ninety seconds are gone.

...

"Reminders"

Temporal gap: five minutes

Voice memo recorded on personal mobile device. Timestamp: 9:23 AM, March 6, 2024. Speaker: Claudette Mwangi, 41. Duration: 2 minutes, 14 seconds. Transcribed from audio.

Okay, so, parking. There is a garage on the left after you pass the Citgo, not the first entrance, the second entrance, because the first one takes you to the monthly section and you'll end up circling for twenty minutes like last time. Second entrance. Level two or three. Not four. Four has that weird pillar situation where you can't open the driver door all the way and you'll bang the Volvo again and Terence already made a comment about the door dings, so. Not four.

You are wearing the navy blazer, which is correct, and the shoes with the low heel, which are also correct, and the earrings Suki gave you for your birthday, which are small gold hoops that say "I am a person who has taste but does not need you to notice." That is the right message for this meeting. You are not trying to impress. You are trying to be the person they already decided to hire, and that person wears small gold hoops and carries a binder.

Grab the binder. It is on the back seat. It is not in the trunk. I repeat: it is not in the trunk, because you moved it to the back seat this morning specifically so you wouldn't forget it, and if you walk into this meeting without the binder you are going to have to pull the numbers up on your phone and do that thing where you squint and scroll and everyone sits there watching you squint and scroll and it is not the look you are going for. Binder. Back seat. Got it.

The client's daughter's name is Priya. Say it. Priya. Not Priti. You called her Priti last time and the client didn't correct you but you could see it land. It landed like a stone in a pond and the ripples went outward and one of those ripples was the client deciding you don't pay attention. Her name is Priya. She is twelve. She plays field hockey. She just made the travel team, which the client mentioned in an email two weeks ago that you flagged and highlighted, because you are a person who flags and highlights and follows through. You are that person. Congratulate Priya on the travel team. Do it early in the meeting, before the presentation. Do it like you remembered without being reminded, because you did remember without being reminded, because you are good at this.

Check your teeth. You had the spinach thing for breakfast and Owen, for whatever reason, never tells you. Eleven years of marriage and the man will not tell you that you have spinach in your teeth. He will tell you that the dishwasher sounds funny. He will tell you that the Volvo's oil light came on three weeks ago and he has been meaning to mention it. He will tell you his opinion about the new neighbors' landscaping choices with a specificity that borders on surveillance. But spinach in your teeth? No. Silence. This is not a flaw you need to interrogate right now. This is a

flaw you acknowledge and compensate for. Check your teeth.

And you need to stop thinking about what Terence said because it doesn't matter and you are fine and you are good at this. Terence said what Terence says, which is the thing that is technically accurate and strategically devastating, delivered in the tone of someone who believes he is being helpful, which is the worst tone, because you cannot argue with helpful. You cannot look at a man who is being helpful and say "stop being helpful" without sounding like a person who does not want help, and you do want help, just not his help, not the kind that comes packaged in a observation about your "presentation style" that was really an observation about your volume and your pacing and the way you move your hands when you talk, which is a thing you do and which you have done since you were a child and which your mother called "conducting" and which Terence called "distracting," and the distance between those two words is the distance between a person who loves you and a person who manages you, and you know which one Terence is, and you need to stop thinking about it because the meeting is in six minutes.

The presentation is on the shared drive under Q1 Proposals. You tested the slides last night. They load. The transitions work. The bar chart on slide nine had a color issue but you fixed it and it is blue now, not that strange salmon that made the revenue numbers look like they were blushing. Blue. Professional. Good.

One more thing. When the client asks about the timeline, and she will ask about the timeline because she always asks about the timeline, do not say "aggressive but achievable." You said that last time and even you heard how it sounded. Say "tight." Say "we've built in a two-week buffer for review cycles." Say something that means the same thing but sounds like it came from a person who does not rehearse her sentences in the car. Even though you do. Even though this entire memo is a rehearsal, and you know it, and the five-minutes-from-now version of yourself will not listen to it because she will be too busy parking on Level Two and checking her teeth and trying to remember if the daughter's name is Priya or Priti, and it is Priya, and you know this, and you will still hesitate.

Okay. You are parking now. Second entrance. Level two or three. Not four. Binder. Back seat. Priya, not Priti. Teeth. Slides are blue.

You've got this.

You have absolutely got this.

End of recording. Playback history shows the memo was never accessed after its initial creation.

• • •

End of Part I: The Blink

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PART II

THE HOUR

Temporal range: one hour to one day

"Back by Six"

Temporal gap: one hour (intended). Indefinite (actual).

Went to get the thing for the sink. Back by six.

...

That is the letter. Eleven words, written in blue ballpoint on the back of a gas bill envelope from the Elizabethtown Gas Company, dated for the billing period of October 3 through November 2, 2022. The handwriting is blocky and slightly left-leaning, the script of a man who was taught cursive in school and abandoned it the moment no one was grading him. The capital B in "Back" is the only letter that retains a trace of formal instruction, its two bumps carefully rounded in a way that suggests the writer's hand remembers something his mind has stopped enforcing.

The envelope sits on the kitchen counter of a split-level house at 14 Osprey Lane, Cranford, New Jersey. It is weighted down by a coffee mug. The mug is white ceramic, the kind given away at trade shows, and bears the logo of Garden State Plumbing Supply, a company that filed for dissolution with the New Jersey Division of Revenue in 2011. The logo is faded to the point where the blue pipe wrench in the center of the design has become a blue suggestion, a shape that requires prior knowledge to decode. Gil Oshiro, sixty-seven, retired pipe fitter, has been drinking his morning coffee from this mug for at least twelve years, which means he has been drinking from a memorial to a defunct company longer than the company existed in its final incarnation. He does not think of the mug this way. It is the mug.

The note is addressed to his wife, Noreen. Not formally addressed, of course. There is no "Dear Noreen" at the top, no "Love, Gil" at the bottom. The note does not need a salutation because it exists inside a context so dense with shared reference that the eleven words are, for Noreen, a complete communication. "The thing for the sink" is a faucet aerator. Gil and Noreen have discussed the faucet aerator three times this week. The kitchen faucet has been spraying unevenly since September, sending a fan of water to the left that soaks the backsplash behind the dish rack. Noreen mentioned it the first time. Gil investigated and diagnosed the aerator. Noreen asked when he was going to fix it. Gil said he would get the part. "The thing for the sink" is the terminal compression of a domestic negotiation that has been conducted across multiple conversations, multiple rooms, and at least one instance of Noreen pointedly drying the backsplash with a towel while Gil was eating cereal.

"Back by six" is a temporal promise. Gil writes it at 4:47 PM on a Saturday. The hardware store is eleven minutes away. The errand should take no more than thirty minutes, including the inevitable conversation with Teddy Pasko at the register, who will want to discuss the Rutgers game, and the additional four minutes Gil will spend in the plumbing aisle comparing aerator brands despite knowing he will buy the same one he always buys. "Back by six" builds in a buffer. It is generous. It accounts for traffic, for Teddy, for the possibility that the store will be out of the preferred brand and he will need to drive to the Lowe's on Route 22. Six o'clock is a promise made by a man who has been making and keeping small promises for forty-one years of marriage and who has no reason to believe this one is different from any other.

The note stays on the counter, under the mug, for nineteen days.

During those nineteen days, the kitchen continues to operate. The coffee maker, a Mr. Coffee twelve-cup model that Gil bought at a Sears that no longer exists, runs every morning at 5:40 AM because Gil set the auto-brew timer in 2019 and nobody has changed it. The coffee maker does not know that the coffee is not being poured into the Garden State Plumbing Supply mug. The coffee maker makes twelve cups. Noreen drinks two. The rest sits in the carafe until evening, when Noreen pours it down the sink. She has considered turning off the auto-brew. She has considered this every morning for nineteen days, standing in the kitchen in the half-light with the smell of coffee filling a room that smells like coffee every morning at 5:40 because Gil set the timer, and she has not turned it off, because turning it off would be a decision, and a decision would be an acknowledgment, and an acknowledgment would be a verb in a tense she is not ready to conjugate.

The mail arrives. The mail has always arrived at 14 Osprey Lane between 1:15 and 1:45 PM, delivered by a carrier named Dolores (not Dolores Kwan, not Dolores Hambly, just Dolores, the mail carrier, whose last name Noreen has never learned despite twenty years of delivered mail), and during the nineteen days, the mail includes: three utility bills, a circular from ShopRite, two credit card offers addressed to Gil Oshiro, a dental reminder card addressed to Gil Oshiro, and a catalogue from a tool company that Gil subscribed to in 2010 and that continues to send catalogues with the regularity of a geological process. Noreen puts all of it on the counter, next to the note. She does not open the envelopes addressed to Gil. She does not throw away the catalogue. She stacks them neatly, flush edges, a growing pile of correspondence addressed to a recipient who is not present, a small post office of unanswered letters accumulating beside the one letter that was answered, or would have been answered, if the future had cooperated.

It is not the purpose of this account to explain why. The why belongs to Gil and Noreen and to the specific machinery of what happened between 4:47 PM and six o'clock on that Saturday, and the machinery is not available to this record and would not be appropriate to it. What is available is the note itself, which continues to sit on the counter under the mug, and which Noreen does not move. Not on the first day. Not on the seventh. Not when her sister, Carol, comes to stay and asks, gently, if she wants to clean up some of the kitchen clutter, and Noreen says no. Not when Carol, less gently, says, "Noreen, you have nineteen days of mail on the counter," and Noreen says,

"Eighteen," which is a correction that tells Carol everything she needs to know about the counting, about the precision of the grief, about the way Noreen is tracking the days not on a calendar but against the note, which is the fixed point, the origin, the zero from which all subsequent days are measured. Not when the gas company sends the next bill and Noreen could, if she chose, replace the old envelope with the new one, an act of administrative housekeeping that would make perfect sense and that she does not perform.

The note is not a relic. It is not a memorial. Noreen does not light candles around it or speak to it or treat it as anything other than what it is: a note on the counter. But she does not move it because moving it would require engaging with its temporal grammar. "Back by six" is a sentence in the future tense. It points forward. It is still pointing forward. The event it predicts has not been cancelled; it has simply not arrived. And there is a version of time, a version that Noreen inhabits for at least part of every day, in which the note is still operative, still pending, still a message from a man who is on his way to the hardware store and who will return with a faucet aerator and the news that Teddy Pasko thinks the Rutgers secondary is weak against the pass.

The note was written as a one-hour letter. Its gap was supposed to be sixty, perhaps seventy minutes. The gap is now something else. The gap is the space between the future tense and the past tense when the future tense refuses to conjugate.

On the twentieth day, Noreen moves the mug to the dishwasher. She picks up the envelope, reads it once, folds it in half, and puts it in the top drawer of the desk in the hallway, where Gil kept the owners' manuals for appliances they no longer own and the warranty cards for products whose warranties expired in the previous decade. She does not throw it away. She files it. It goes between the manual for a Panasonic microwave (purchased 2004, replaced 2017) and a coupon booklet from Bed Bath & Beyond, a store that no longer exists.

The faucet still sprays to the left.

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"The Exam"

Temporal gap: twelve hours

The textbook is Campbell and Wilkinson's *Organic Chemistry: Principles and Applications*, fourth edition, published 2019, used. Declan Torr bought it from a graduating senior named Annika something for forty dollars cash in the lobby of the chemistry building during the first week of the fall semester, and it arrived in his possession already annotated by Annika in green ink with notes that were either brilliantly concise or totally wrong, and Declan has never been able to determine which because Annika's handwriting is the handwriting of someone who was always in a hurry and who apparently believed that the letter R and the letter V were interchangeable.

Declan's notes, written on the inside front cover, inside back cover, and title page, are in black Sharpie. The Sharpie was a mistake. It bleeds through the page and is visible as a ghostly mirror script on the facing side, which means that every time Declan opens the textbook to the table of contents, he is confronted with the reversed shadow of his own panic. But at midnight, when he began writing these notes, the Sharpie was the only writing instrument within reach that was not a green pen belonging to the ghost of Annika, and Declan has a superstition about using another student's pen to study for an exam, which is not a superstition he held before tonight but which materialized fully formed at the moment he reached for Annika's green pen and felt, in his fingertips, a certainty that the pen was cursed. This is what happens to the rational mind at midnight before an organic chemistry exam. It generates new religions.

Inside front cover:

SN1 vs SN2 SN1 = 1 step. Carbocation intermediate. Favored by: tertiary substrate, polar protic solvent, weak nucleophile. SN2 = 1 step also?? No. 2 molecules in rate-determining step but it IS one step. Concerted. Backside attack. Favored by: primary substrate, polar APROTIC solvent, strong nucleophile. WAIT. If SN1 is one step and SN2 is one step then why are they called 1 and 2. THE NUMBERS ARE ABOUT THE KINETICS NOT THE MECHANISM. The 1 means first-order kinetics (rate depends on substrate only). The 2 means second-order (rate depends on substrate AND nucleophile). I think I just learned this for the first time right now. It is midnight. The exam is in eight hours. I have been studying this for six weeks.

Inside back cover:

E1 vs E2. Elimination reactions. E1 is like SN1's cousin who also makes bad decisions. Carbocation intermediate again. E2 is concerted, needs antiperiplanar geometry. Draw the Newman projection. DRAW THE NEWMAN PROJECTION. If you are reading this and you have not drawn the Newman projection yet, draw it now. I don't care that you're in the exam hall. Take the

thirty seconds. Draw it. You'll thank me. I'll thank me. We are the same person.

Zaitsev's rule: the more substituted alkene is the major product. EXCEPT when the base is bulky, then you get Hofmann product (less substituted). The word "bulky" is doing a lot of work in this course. Everything is either bulky or not bulky. We have reduced the universe to two categories and one of them is bulky.

Stereochemistry. R and S configuration. Assign priorities using Cahn-Ingold-Prelog. Highest atomic number = highest priority. If two atoms are the same, go to the next one down the chain. The lowest priority group goes in the back. Then: clockwise = R, counterclockwise = S. This sounds simple. This is not simple. This is the part where I always get turned around (ha ha, chemistry pun, kill me) because I forget to put the lowest priority in the back BEFORE I determine rotation. Last practice exam I assigned three out of four stereocenters backwards. Three. Out of four. The statistical probability of getting three out of four wrong by chance is actually worse than getting all four wrong, which means I am not guessing randomly, I am guessing systematically in the wrong direction, which means I know the system, I am just applying it inside out. This is somehow worse than not knowing it at all.

Note to future self: when in doubt, build it with your hands. Use the model kit. You don't have the model kit? Use your fingers. Point your thumb at the lowest priority group. The remaining three fingers curl in the direction of R or S. Dr. Agarwal showed this trick in lecture and you thought it was silly and now it is 12:35 AM and you would trade your left shoe for a reliable method of determining chirality.

Title page, written vertically along the left margin:

Chair conformations. Axial vs equatorial. Big groups want equatorial. This is not complicated. This is basically social seating. The big groups want more room. Put them where they have more room. If you put a tert-butyl group in the axial position it will be angry and the molecule will be unstable and you will lose points. Do not make the tert-butyl group angry.

REMEMBER THE THING ABOUT THE CHAIR.

Across the top of the title page, written horizontally in smaller letters that suggest the Sharpie was running low and Declan was pressing harder to compensate:

Acid-base. Strong acids: HCl, HBr, HI, H₂SO₄, HNO₃, HClO₄. pK_a values: the lower the number, the stronger the acid. Water is 15.7. Ethanol is about 16. Acetylene is 25. If someone asks you to rank acidity and you blank, think about electronegativity and resonance stabilization of the conjugate base. More stable base = stronger acid. This is the one concept I feel solid on so naturally it will not be on the exam.

Declan underlines this three times. The Sharpie bleeds through the title page and onto the page beneath it, which is the preface, where Professor Campbell thanks his wife and his graduate students and his dog, and where Declan's bleed-through has added, in spectral reverse, an urgent instruction about chairs that Professor Campbell did not write and would probably find alarming.

The thing about the chair is this: Declan cannot remember. He knows there is a thing. He wrote "REMEMBER THE THING ABOUT THE CHAIR" because, at 12:40 AM, he encountered a concept in Chapter 4 that clicked into place with a satisfaction so complete that he was certain, absolutely certain, that he would remember it forever. He did not write the concept down because writing it down seemed unnecessary. It was obvious. It was luminous. It was the kind of understanding that does not require notes because it has been absorbed into the body of knowledge itself.

It is now 7:48 AM. Declan is sitting in Room 214 of Whitman Hall with the textbook open to the inside front cover. He has twelve minutes before the exam begins. The room smells like institutional carpet and anxiety and the particular sweetness of energy drinks consumed in volumes that would concern a cardiologist. Around him, eighty-six other students are performing their own versions of the same ritual: scanning notes, mouthing formulas, staring at the ceiling in the specific posture of a person trying to retrieve a memory by looking at the place where the memory is not. A woman two rows ahead is crying quietly into her scarf. A man in the back row is asleep, his head on his arms, either because he has given up or because he finished studying hours ago and has the constitution of someone who can sleep in an exam hall, which is a kind of confidence Declan cannot fathom.

He is reading his own handwriting and he cannot determine what "THE THING ABOUT THE CHAIR" refers to. He checks the inside back cover. He checks the title page. He reads the stereochemistry notes and for a moment is distracted by the model kit paragraph, which he does not remember writing, and which reads like the work of a slightly different person, a person who was capable of self-deprecating humor at 12:35 AM, a person Declan envies from the distance of seven hours and thirteen minutes. He looks at the vertical note in the margin, hoping that proximity will trigger recall. It does not. The concept that was luminous at 12:40 AM is dark at 7:48 AM, not because it was false but because the twelve-hour gap between writing and reading has carried it away. The version of Declan who understood the thing about the chair existed at 12:40 AM and ceased to exist at approximately 12:43 AM, when Declan moved on to elimination reactions and the neural pathway that held the concept was overwritten by E1 and E2 and Zaitsev and the angry tert-butyl group.

The twelve-hour letter has failed. The sender and the recipient share a body, a name, a student ID number, a seat in Room 214 of Whitman Hall. They are, by every legal and administrative measure, the same person. And yet the message does not arrive. The sender encrypted it in a language the recipient cannot read, because the sender, in his midnight confidence, believed that understanding was permanent, that once you knew a thing you could not un-know it, that the twelve-hour gap between midnight and morning was a corridor, not a canyon.

Declan takes the exam. He scores a 71. The questions on chair conformations are worth eight points. He gets three of them. The thing about the chair, whatever it was, would have been worth the other five. The stereochemistry section, which Declan was certain would not appear, is worth

twelve points. He gets nine, mostly by using the finger trick from Dr. Agarwal's lecture, the one he remembered only because his midnight self, in a moment of sarcasm, had written it down. The note he made as a joke saved him. The note he made in earnest did not. There is no lesson in this. Or if there is, the lesson is that the self who writes to the future should not assume it knows which messages will matter.

He does not think about this as a failure of temporal correspondence. He thinks about it as a failure of studying. He tells his roommate, Andre, that the exam was "brutal" and that the chair conformation questions were "unfair," both of which are the assessments of a man who does not yet understand that the problem was not the exam or the chairs but the gap, the ordinary and inevitable gap between the self who learns and the self who is tested, which are never the same self, no matter how short the interval, no matter how bright the understanding seemed when it first arrived.

Three weeks later, Declan will be in the library, working through a problem set for the next unit, and the thing about the chair will come back to him. It will arrive without warning, between one breath and the next, while he is looking at a completely unrelated diagram of a Diels-Alder reaction. The concept will be exactly as clear as it was at 12:40 AM, and Declan will sit very still for a moment, holding it, and then he will write it down. He will write it in full, with an arrow diagram and a sentence of explanation, on page 147 of the textbook, in the margin next to a paragraph about cyclohexane ring flips. He will write it in Annika's green pen, because the Sharpie has been dry for two weeks and the green pen is all he has, and because the superstition about the cursed pen has expired, as superstitions do, in the light of an ordinary Tuesday afternoon. The note will say: *1,3-diaxial strain is additive. Two axial methyl groups don't just each have their own strain, they have strain WITH EACH OTHER. The ring doesn't just mind having them, it minds them being near each other. It's not about the groups, it's about the RELATIONSHIP between the groups.*

This is the thing about the chair. It arrives three weeks too late, written in the wrong pen, on a page nobody will read until the next student buys the textbook for thirty-five dollars from a bin outside the campus bookstore and finds, on page 147, in green ink, a sentence about relationships between groups that she will not understand is a letter from a man who missed it on the exam.

Annika, whoever she was, got an A in this course. Her green annotations on page 193, next to the chair conformation section, say simply: *axial = 1,3-diaxial interactions = steric strain. Draw it every time. Don't trust your memory.*

Declan did not read Annika's notes. He did not trust the green pen.

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"Shift Change"

Temporal gap: twenty-four hours

Night shift report, Intensive Care Unit, Breckland County Medical Center. Written by Kezia Brandt, RN, BSN, CCRN. Shift: 1900-0700. Date: March 14, 2024. For the incoming night nurse, March 15.

I am writing this at 0614 and I have forty-six minutes left and I want to go home. I am telling you this not because it is medically relevant but because it will be medically relevant to you in about eleven hours, when you are sitting where I am sitting and you have forty-six minutes left and you want to go home, and you will know then, as I know now, that the last hour of a night shift is the hour when the charting gets honest. Not dishonest before that. Just less willing to include the things that do not fit in the boxes. The electronic chart wants data. I am going to give you data and I am also going to give you the other thing, the thing that does not upload.

Bed 1. Margolis, Eugene. 81. Post-op day three, CABG x4.

Vitals stable overnight. Pressure 128/74 at 0600. He is on a heparin drip, currently at 18 units per kilo per hour, and the last aPTT at 0400 was 62, which is therapeutic, so do not let the day team talk you into adjusting it just because the 0200 value was 54. It was 54 because he was vomiting at 0130 and his volume was down and his concentration was off. I bolused 250 of saline and rechecked at 0400 and the number corrected. The day nurse will see the 54 on the flowsheet and will want to bump the drip. Show her the 0400 value. If she insists, call Dr. Petrosyan, who will agree with you because Petrosyan understands that a single low aPTT in the setting of emesis is not a trend, it is a moment.

The other thing about Mr. Margolis: he is afraid of the dark. He has not said this. He is eighty-one years old and a retired electrician and he has the bearing of a man who has never admitted to being afraid of anything, including the four-vessel bypass that opened his chest three days ago. But every night at around 0200 he calls for the nurse. The call light goes on. I go in. He asks for water, or for the head of the bed to be adjusted, or for the time. He does not need water. The bed is fine. He has a clock on the wall. What he needs is a person in the room. I have been his night nurse for three consecutive shifts and the pattern is the same each time: 0200, call light, a request that is not the real request. Tonight I sat with him for four minutes. He told me that his wife, Phyllis, used to keep a nightlight in the hallway, one of those plug-in ones shaped like a seashell, and that the light from it came under the bedroom door and that was how he fell asleep for fifty-three years. Phyllis died in 2021. The seashell nightlight is still plugged in at his house. His daughter checks on the house while he is here and he has asked her not to unplug anything.

I cannot chart any of this. The electronic record has no field for seashell nightlights. But I am telling you because at 0200 tomorrow his call light will go on, and when it does, you should go in, and you should not be quick about it.

Bed 4. Okafor, Clement. 58. Anoxic brain injury, day nine. Full code, per family.

No change. Vitals stable. Vent settings unchanged. GCS remains 3T. Pupils fixed and dilated bilaterally. No response to central or peripheral stimulation. I have been his nurse four times now and there has been no change any of those times and there will be no change tomorrow and we both know this and the family knows this, or the part of the family that is capable of knowing it knows it, and the part that is not capable does not, and those two parts of the family are sometimes the same person shifting between states like a particle that has not yet been observed.

His daughter, Chidinma, is here every evening from six to eight. She reads to him from the newspaper. She reads the sports section. I do not believe Mr. Okafor was a sports fan. I have looked at his belongings, which are stored in the closet in a plastic bag labeled with his name and admission date, and there is nothing in the bag that suggests an interest in sports: no team hat, no jersey, no logo of any kind. There is a worn paperback, a collection of Chinua Achebe's essays, with several pages dog-eared. There is a set of reading glasses with one arm repaired with electrical tape. There is a phone with a cracked screen that nobody has the passcode to.

Chidinma reads the sports section because it is the section least likely to contain bad news. Scores are neutral. Standings are objective. A box score is a box score. She can read it aloud in a room where the only sounds are the ventilator and the infusion pumps and her own voice, and none of the words she reads will make the situation worse, because none of them are about the situation. She has been doing this for nine days and she has not missed an evening and she always stays until exactly eight o'clock and then she closes the newspaper and folds it and puts it on the bedside table and touches her father's hand and leaves. The newspaper stays on the table until I remove it during my rounds. I have started keeping them. I do not know why. They are in the bottom drawer of the supply cart at the nurses' station. There are nine of them.

Bed 7. Tran, Bao. 44. Acute pancreatitis, day five. NPO.

He says he does not want morphine. He wants morphine. Give him the morphine.

I am not being flip. I know how that reads. But Mr. Tran is a man who has been NPO for five days, which means he has not eaten in five days, and the pancreatitis is the kind that announces itself in waves, and the waves come at night because everything comes at night, and when the wave hits he grips the bedrail with both hands and his jaw locks and he breathes through his nose in a pattern that I recognize because I have seen it many times and it is the pattern of a person who has decided to endure. He has decided to endure because he told me, on the second night, that his father was an addict and that he has spent his entire adult life keeping a specific distance from anything that could close that distance, and morphine is on the wrong side of the line.

I told him that acute pain management in a hospital setting is not the same as addiction. He said he understood that. He said he understood the pharmacology and the physiology and the difference between dependence and abuse. He said he understood all of it and he still did not want the morphine. Then at 0300 the wave came and he pressed the call button and when I came in he said, "I changed my mind," and I gave him 4 milligrams IV push and the grip on the bedrail loosened and his breathing changed and his face did something I can only describe as arriving. He arrived at the place the pain had been keeping him from, which was the present tense, which is where the rest of us live without knowing it is a privilege.

He will refuse the morphine again tomorrow. He will change his mind again at 0300, or 0100, or 0400, whenever the wave decides to come. Do not argue with him when he refuses. Do not lecture him about pain management. When he calls, go. When he changes his mind, give him the morphine. The negotiation is his. The morphine is yours. Those are separate things and they are both necessary.

Bed 10. Park, Soon-Yi. 72. CHF exacerbation, day two.

She is pleasant and cooperative and her troponin trended down overnight and her BNP is improving and I have nothing unusual to report except that she makes origami cranes from the paper napkins on her meal tray and there are now fourteen of them lined up on the windowsill. She cannot eat much because the fluid restriction makes her nauseated and the low-sodium diet is, in her words, "food for people who have already given up." She asked me if I had ever been to Seoul and I said no and she said that was a shame because the food there would make me angry at every hospital meal I had ever served. I told her I do not serve the meals, I only deliver them, and she said the distinction was irrelevant to the food.

She told me she came to the United States in 1978 with her husband, who was an engineer, and that they lived in Fort Lee for forty-three years, and that her husband died in 2021, and that she now lives alone in the same apartment, which she has not redecorated since 1994 because she likes it the way it is and because the wallpaper in the living room, a pattern of pale blue flowers that she chose from a sample book at a store in Hackensack that no longer exists, reminds her of a garden she visited once in Gyeongju when she was a girl, and the wallpaper is the only thing in the apartment that contains this memory, and she does not intend to paint over it. I do not know why she told me this. I do not know why patients tell night nurses things they would not tell their daughters or their doctors or their priests. I think it is because the night shift does not count. Not officially. But there is something about the hours between midnight and six, something about the lighting and the quiet and the fact that the rest of the world is asleep, that makes people say things they would not say in the daytime. The night nurse hears it. The night nurse charts the vitals and goes home and the patient wakes up and the day begins and the things that were said at 3 AM stay at 3 AM. This is not true, of course. I remember everything. But the patients believe it, and the belief gives them permission, and the permission produces the wallpaper in Hackensack and the garden in Gyeongju and the cranes on the windowsill.

Her cranes are getting smaller. The first ones, from day one, are made from full-size napkins and are approximately four inches tall. The ones she made tonight are made from napkin quarters and are barely an inch. I asked her if she was running out of napkins and she said no, she was getting better at it. I think she means something by the diminishing size, something about precision or control or the pleasure of doing a small thing well while the body is doing its large failing thing, but I did not ask because the question would have required us both to acknowledge that she is in the ICU for heart failure and that the cranes on the windowsill are not a hobby, they are a discipline, and the discipline is what she is using to keep the walls of the room at the correct distance.

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The above is the report. What follows is not the report.

I have worked nights in this unit for eleven years. I have written approximately four thousand shift reports. The reports have gotten longer over the years, not because the patients have gotten more complex (though they have) but because I have gotten more willing to include the parts that do not fit. When I started, I wrote what the chart required and nothing more. Vitals, medications, interventions, responses. Clean data. The kind of report that protects you in a deposition and tells the next nurse nothing useful.

I changed because of a patient I had in my second year. His name was Greer. I do not remember his first name. I remember that he was in Bed 6 and that he had a ruptured abdominal aortic aneurysm and that the repair was successful and the recovery was not. He died on my shift, at 0347, on a Wednesday. My shift report for that night said: "Patient expired at 0347. Code called. Attending notified. Family notified." That is what the report said. What the report did not say is that Mr. Greer spent the last hour of his life telling me about a dog he had owned in 1974, a retriever named Cork, and that the dog had once fallen through the ice on a lake in Wisconsin and that Greer had gone in after the dog and pulled him out and that the dog lived for another eleven years and that Greer, telling me this at 0300 in an ICU in a hospital he would not leave alive, was smiling. The report said "patient expired." The report said nothing about the dog or the lake or the smile or the eleven years. I decided, after that night, that I would never write another report that said only what the chart required. The chart wants numbers. The chart wants medication times and output volumes and Glasgow scores. The chart does not want the dog named Cork. But the dog named Cork is what happened, and if I did not write it down, nobody would.

Now I write this way. I write about seashell nightlights and origami cranes and the sports section and the specific look on a man's face when the morphine arrives. I write it in longhand, in a unit logbook that officially does not exist, because the hospital switched to fully electronic charting in 2016 and the logbook is a relic of the previous system that nobody has removed because nobody remembers it is here. It sits on the counter behind the pneumatic tube station, under a binder of outdated infection control protocols, and the only people who write in it are me

and Eunice Kwan, who works Wednesday and Thursday nights, and whose entries are shorter than mine but contain drawings. Eunice draws the view from each patient's window. She has been doing this for three years. There are hundreds of small pencil sketches of the same parking lot, the same tree line, the same sky, seen from rooms that face the same direction but that are, in Eunice's drawings, always slightly different because the light is always slightly different and because the cars in the lot are never the same cars twice.

I do not know who will read this report. I do not know if the night nurse tomorrow will be someone who checks the logbook or someone who has never heard of it. I am writing to a version of the future that may not arrive: a nurse who has time to read longhand notes, who cares about the difference between data and knowledge, who will sit with Mr. Margolis at 0200 not because the chart says to but because I said to, here, in ink, in a book that the hospital does not know it owns.

It is 0649. I have eleven minutes. My coffee is cold. The parking lot is beginning to fill with day shift cars and the sky above the tree line is doing the thing it does in March, going from black to gray to a pale washed blue that looks provisional, as though the day has not yet committed to arriving. Eunice would draw this. I am only going to describe it and hope that the description survives the twenty-four-hour gap between my shift and yours.

Go in when the call light goes on. Do not be quick about it.

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End of Part II: The Hour

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PART III
THE SEASON

Temporal range: weeks to years

"Recipe Card"

Temporal gap: three hours to sixty years

The card is a standard 4x6 index card, lined, Oxford brand, purchased in a pack of one hundred from a stationery store that occupied the ground floor of 412 South Presa Street in San Antonio, Texas, until 1986, when the building was converted to a taqueria, which itself closed in 2003 and is now a phone repair shop with a hand-lettered sign in the window. The card has survived all of these transformations. It is stained in two places: a dark crescent of mole near the upper right corner, and a smudge of chocolate along the left edge that has oxidized to the color of old rust. It smells, faintly, of cumin and char.

The original text is written in black ink, in a hand that is small and certain and wastes no space:

Mole Negro (for 8)

Toast 6 chiles mulato, 4 chiles negro, 3 chiles pasilla in dry skillet until soft. Remove seeds. Soak in hot water 30 min. Toast separately: 1/4 cup sesame seeds, 10 peppercorns, 4 cloves, 1 stick cinnamon (Mexican). Char 1 onion and 6 cloves garlic in comal. Fry 1 plantain in lard until black. Fry stale tortilla in same lard. Blend all with 1/2 tablet Oaxacan chocolate, soaking water as needed. Strain through molinillo. Cook in deep clay pot on low heat 2 hours. Salt. Taste. Adjust. Serve over turkey or chicken. Do not rush the chocolate.

This is Estela Vargas, born 1931 in Ejutla de Crespo, Oaxaca, writing in San Antonio sometime in the early 1970s. The recipe is not written for anyone in particular. It is written to be present in the kitchen, a reference document that Estela consults not because she has forgotten the proportions (she has been making this mole since she was eleven, watching her mother, and the proportions live in her hands) but because the act of having written them down satisfies a need for formality that the dish demands. Mole negro is not casual. It does not tolerate approximation. Or rather, it tolerates the specific approximations that Estela has spent forty years calibrating and that the word "adjust" on the card encodes without explaining. "Adjust" means: you will know. If you do not know, no card can teach you.

The first annotation appears in blue ballpoint, a different hand, rounder and more hurried, crowding into the narrow space between the lines:

She means a full tablespoon of sesame seeds, not a quarter cup. A quarter cup will take over the whole dish. I have made this mistake and you will too if you trust what she wrote. She measures by hand and her hands are not your hands.

This is Rosa Vargas-Medina, Estela's daughter, writing sometime in the 1980s. Rosa's relationship to the card is corrective. She has watched her mother cook this mole dozens of times and she has noticed the discrepancy between what Estela writes and what Estela does. Estela writes "1/4 cup sesame seeds" because that is the measurement she learned from her mother, spoken aloud in a kitchen in Oaxaca, and writing it down means honoring the original instruction. But when Estela actually measures the sesame seeds, her hand stops well short of a quarter cup. The recipe as written is the recipe as inherited. The recipe as practiced is something else. Rosa's annotation is a bridge between the two, a correction made not to the recipe but to the distance between text and performance.

Rosa adds a second note, in the margin beside the chocolate instruction:

Use Oaxacan chocolate, not Abuelita, I don't care what she says. She started using Abuelita in 1978 because the Oaxacan was hard to find and she never switched back and the mole has not been the same since and she knows it and she will not admit it.

This is a daughter's argument with a mother, conducted on a 4x6 card across a gap of perhaps ten years. The argument is not about chocolate. The argument is about authority, about who owns the recipe, about the moment when a dish passes from one generation to the next and the terms of the transfer are disputed. Estela believes the recipe belongs to her because she received it. Rosa believes the recipe belongs to whoever makes it most faithfully, and fidelity, in Rosa's view, means fidelity to the original ingredient, not to the substitution her mother made during a shortage and never corrected. They are both right. The card holds both positions without resolving them.

The second set of annotations is in pencil, lighter and more tentative, the handwriting of someone who is not yet sure she has earned the right to mark this card:

I think the ancho needs to be toasted longer than she says. Mine were still leathery after 3 min. Maybe because my skillet runs cool?

And, lower, at the bottom of the card, in the same pencil, pressing harder:

Made this for Noche Buena 2019. First time without Abuela. Burned the chocolate. She would have laughed.

This is Marisol Vargas-Medina, Rosa's daughter, Estela's granddaughter. The gap between Estela's original text and Marisol's pencil note is approximately fifty years. In that span, the card has traveled from Estela's kitchen on Agua Dulce Street to Rosa's kitchen in a subdivision near Loop 410 to Marisol's apartment in Austin, carried in a recipe box that Rosa gave Marisol when Marisol left for college and that Marisol did not open for six years because she did not cook and did not intend to cook and did not understand why her mother had given her a box full of index cards she could not read without a dictionary and a sense of smell she had not yet developed.

Marisol opened the box in December 2019 because Estela had died in October. The mole for Noche Buena had always been Estela's responsibility. In Estela's absence, the responsibility did

not transfer to Rosa, who could have made it and made it well, but to Marisol, who volunteered, which surprised everyone, including Marisol. She volunteered because she had found the recipe box while unpacking a closet and because she had read the card, including her mother's annotations, and because she understood for the first time that the card was not a recipe. It was a conversation. And the conversation had a space in it where her voice was supposed to go.

The cooking took nine hours. The recipe says two hours for the final simmer, but the recipe does not account for the three hours of preparation that precede the simmer, or the hour Marisol spent at the grocery store on South Lamar trying to find chiles mulato, which she had never purchased before and which she identified only by showing a photograph on her phone to the man behind the counter at the Mexican grocery, who looked at the photograph and said, "Those," and pointed to a bin that Marisol had walked past twice. The recipe does not account for the forty minutes Marisol spent toasting chiles on a dry skillet while reading and re-reading the card, holding it away from the stove with the care you would give a document made of spun glass, which, after fifty years of handling and cooking and annotation, it very nearly was. The recipe does not account for the time Marisol spent standing in her kitchen at 2 PM on Christmas Eve, crying, not because the mole was difficult but because the mole was the same mole she had eaten every Christmas of her life and the woman who had made it was dead and the card was all that remained of the making, and the card said "adjust" and the card said "do not rush the chocolate" and Marisol did not know what to adjust or how to not rush something that required patience she had not yet earned.

She burned the chocolate because she was watching a video on her phone that was supposed to show her how to temper Oaxacan chocolate and the video was wrong. Or the video was right for a different chocolate, or a different altitude, or a different pot. The chocolate seized and then scorched and the smell filled the kitchen with a bitterness that was not the bitterness the mole wanted. She scraped the pot. She started the chocolate again. The second attempt was not perfect, but it was close, and when she served the mole that night, Rosa ate it without comment, which was the highest compliment Rosa Vargas-Medina had ever given anyone, and which Marisol recognized as such only later, lying in bed in her apartment two days after Christmas, replaying the meal in her head. She replayed the moment Rosa lifted the spoon to her mouth. She replayed the pause. She replayed the absence of comment, which was louder than any comment, and which said, in the Vargas-Medina family's grammar of food and love and quality control: this is close. This is close enough. This is yours now.

Marisol's pencil note at the bottom of the card is the newest layer of a palimpsest that is still being written. The card is not finished. It will not be finished until the last person who makes this mole adds her annotation and puts down her pencil and no one picks it up again. The temporal gap the card is crossing is not three hours or fifty years. It is the entire lifespan of the recipe, from the kitchen in Ejutla de Crespo to wherever the card ends up when there is no one left who knows what "adjust" means.

The chocolate instruction at the bottom of Estela's original recipe reads: "Do not rush the chocolate." This is the only sentence on the card that is not a measurement or a procedure. It is advice. It is the only moment where Estela speaks to the future directly, and what she says is: be patient with the part that is easiest to ruin.

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"Instructions for the House Sitter"

Temporal gap: two weeks

INSTRUCTIONS FOR JONAH RE: HOUSE, 414 THISTLEWAITE ROAD, OCTOBER 11-25

Jonah, thank you again for doing this. Your mother says you are responsible and I have no reason to doubt her, though I should mention that she also said you were "handy," which in my experience is a word mothers use to describe sons who have at some point successfully changed a lightbulb. Regardless, the house is not complicated. It just has preferences.

Keys. The front door key is brass and sticks slightly when you turn it counterclockwise. Do not force it. Jiggle it gently, apply light pressure to the door with your hip, and it will turn. The back door key is silver and works normally. The garage code is 4187. This is my wedding anniversary year. I am aware that this is a poor security practice and I do not care.

The cat. Her name is Wednesday. She is fourteen years old and she has earned the right to be difficult. Feed her at 7 AM and 6 PM. Wet food in the morning (one half of a can, Fancy Feast Grilled, the chicken variety, NOT the turkey, she will eat the turkey but she will look at you while she does it and you will feel judged). Dry food in the evening (one third of a cup, Hill's Science Diet, the orange bag). Her water bowl is on the mat by the refrigerator. Change it twice a day. She will not drink water that has been sitting for more than six hours. She is particular. I respect this.

Wednesday sleeps on the third step of the staircase. Do not try to move her. Do not try to pet her while she is on the third step. The third step is sovereign territory. If you need to go upstairs and she is on the step, say "excuse me" and wait. She will move. It will take her between ten and forty-five seconds and she will take the full forty-five if she senses impatience.

Wednesday has a medication. It is a thyroid pill, half a tablet, administered once daily in the morning inside a Greenies Pill Pocket (the salmon flavor, third shelf of the pantry). She will eat the Pill Pocket and spit out the pill. Retrieve the pill from wherever she has deposited it (usually next to the water bowl, sometimes under the table, once inside my shoe). Wrap it in a second Pill Pocket. She will eat this one completely. Do not ask me why the second attempt works and the first does not. I have been doing this for two years and the pattern has never varied. The cat has a system. We are inside her system.

Thermostat. 68 during the day, 64 at night. The thermostat is the Honeywell on the wall by the coat closet. It has a digital interface that I have never successfully programmed

and a manual override that works fine. Up arrow for warmer. Down arrow for cooler. Ignore the "schedule" button. The schedule button leads to a menu tree that I entered once in February and did not escape from for twenty minutes. There was a moment during those twenty minutes when I was fairly certain the thermostat had become sentient and was testing me. I failed its test.

The plants. There are eleven. I have numbered them. The numbers are on small labels attached to the pots with twist ties. I did this yesterday and I am aware that it looks insane. The numbering system corresponds to a watering schedule taped to the inside of the cabinet above the sink:

Plants 1 through 4 (the herbs on the kitchen windowsill): every three days, moderate water, do not soak. The basil is dramatic and will wilt at the first sign of neglect, but it recovers quickly. The rosemary is the opposite: stoic, resilient, and then suddenly dead without warning. I lost a rosemary plant in July because I watered it on the same schedule as the basil and it drowned. Rosemary is from the Mediterranean. It does not want your generosity. It wants to be left alone in the sun. Plant 5 (the spider plant in the living room): once a week, generous water, let it drain. The spider plant has produced four babies since spring. I have not separated them. They hang from the mother plant like small green chandeliers and I find them comforting in a way I have not examined closely and do not intend to. Plant 6 (the snake plant by the television): once every two weeks. It is almost impossible to kill a snake plant. I tell you this not to give you license to try but to assure you that if you forget it, it will forgive you. Plants 7 through 10 (the succulents, the peace lily, and the pothos): the watering schedule on the cabinet door has the details. The peace lily will droop when it needs water. The droop is dramatic and will alarm you. It is fine. Water it. It will recover within two hours and you will feel like a hero. Plant 11 is the fiddle-leaf fig.

The fiddle-leaf fig is in the dining room, in the southeast corner, where it receives approximately four hours of indirect light in the morning. It is three years old. It was eighteen inches tall when I bought it from a nursery in Basking Ridge that has since closed, and it is now four feet two inches tall, which represents a growth rate of approximately fourteen inches per year, which I track in a notebook in the drawer of the sideboard, along with observations about leaf condition, new growth, and any signs of stress.

Water the fiddle-leaf fig once a week. Use room-temperature water. Do not use water directly from the tap because the chlorine content of Westfield municipal water is, in my opinion, too high for a sensitive plant, and the fiddle-leaf fig is sensitive. There is a gallon jug on the counter labeled FIG WATER. I filled it three days ago. The chlorine has had time to off-gas. Use this water. When the jug is empty, refill it from the tap and let it sit for twenty-four hours before the next watering. I know how this sounds. I know that there is a version of this paragraph that makes me seem like a person whose relationship with a houseplant has crossed a boundary. I am aware of where that boundary is. I am standing near it.

The fiddle-leaf fig is not about the fiddle-leaf fig.

I bought it the week Richard moved out. Not the week he moved out, technically. The week after. The week after was the week when the house stopped being a house in transition and became a house in which I lived alone, which is a different category of house, and which required, I decided, a living thing in the dining room to fill the corner where his drafting table had been. The drafting table was six feet long and four feet deep and it had been in that corner for twenty-two years and when he took it, the wall behind it was a different shade than the rest of the room, a cleaner shade, the shade the room had been before two decades of ambient sun had yellowed everything around it. The fiddle-leaf fig covers this. The fiddle-leaf fig stands in front of the proof that something was here and left.

I know what you're thinking, Jonah, or what you would be thinking if you were the kind of twenty-year-old who thinks about the interior lives of women your mother's age, which you may or may not be, and I have no way of knowing. You are thinking: this woman has transferred her emotional needs onto a plant. And you may be right. But I would ask you to consider the possibility that the transfer is not pathological but practical. A house needs living things in it. When one living thing leaves, you replace it with another living thing, and the replacement does not have to be a person. It can be a plant. It can be a cat. It can be eleven plants and a cat, all of them numbered and scheduled and attended to with a thoroughness that some people would call excessive and that I call the cost of keeping a house alive when the house has lost a significant portion of its original population. The fiddle-leaf fig does not replace Richard. The fiddle-leaf fig replaces the emptiness that Richard left, which is a different thing, and a smaller thing, and a thing that a plant can actually do.

I am telling you this, Jonah, not because you need to know it in order to water a plant, but because you will be in this house alone for two weeks and the house will try to tell you things and I would rather you heard them from me. The house makes sounds at night. The upstairs hallway floor creaks in a specific sequence that sounds like someone walking from the bathroom to the master bedroom. It is thermal expansion. The house is old and its bones shift when the temperature drops. The first night I spent alone here after Richard left, I lay in bed and listened to that sequence and I was certain, for about fifteen seconds, that he had come back. He had not come back. The floor was telling a story it has always told. I just had not been listening to it before because there had been a person between me and the sound, a person whose breathing and turning and occasional snoring had filled the space that the silence now occupies.

The house also settles. This is different from the creaking. The creaking happens at a specific time, usually between midnight and one, when the temperature differential between the heated interior and the cooling exterior reaches its peak. The settling happens randomly, a single pop from somewhere deep in the framing, like a knuckle cracking in another room. I have never determined the source. I have walked the house at 3 AM with a flashlight, standing in each room, waiting for the sound, and it will not perform on demand. It is a private sound. It belongs to the house and not to me, and I have learned to accept this the way I have learned to accept that the kitchen faucet drips once every forty seconds (I timed it) and that the bathroom exhaust fan

makes a ticking sound that disappears if you tap the housing with the heel of your palm, two taps, firmly but not aggressively, the way you would knock on a door you expect to be answered.

The previous owners' son died in this house. Natural causes. A heart condition, diagnosed late. He was thirty-one. I learned this from the disclosure form when we bought the house in 2001, and I mention it now only because there is a small water stain on the ceiling of the spare bedroom that I have never repaired, and it is shaped, if you look at it from the bed, like a hand. It is not a hand. It is calcium deposit from a slow pipe leak that I had fixed in 2014. But if you are lying in that bed at night and you look up, you may notice the shape, and I did not want you to wonder about it without context.

I will be in Portland. My sister is there and she is having a procedure and I am going to be present for it and afterward. The procedure is not dangerous. The procedure is the kind of procedure that doctors describe as "routine," which is a word that means "we do this often" and which patients hear as "nothing will go wrong," and I have spent enough time in waiting rooms to know that doctors and patients are using the same word and mean completely different things by it. My sister's name is Ruth. If something happens and you need to reach me and I do not answer my phone, call Ruth's husband, Glenn, at the number on the sheet I left on the kitchen counter. He will know where I am.

Jonah, I want you to know that the house is not difficult. It just has preferences, as I said. It prefers the hallway light left on at night (I do too, since the nightlight in the master bathroom casts enough glow to make the hallway navigable, but not enough to make it comfortable). It prefers the kitchen window open two inches when the weather is above fifty degrees. It prefers quiet in the evening, which is not a rule I am imposing but a quality the house has, a tendency toward stillness after about nine o'clock that you will either notice or you will not.

One more thing, and this is not about the house, it is about you. You are twenty years old and you are spending two weeks in a house that belongs to a woman you do not know well, surrounded by her things, sleeping in her bed (the guest bed, I should say; I have put fresh sheets on the guest bed in the spare bedroom, which is the bedroom with the water stain on the ceiling that I mentioned earlier, and I trust you will manage). You will be alone. I do not know if you are a person who is comfortable being alone. Some people are. Some people find out they are only when they try it. You may like it. You may find the quiet unbearable. Either response is normal. I am not your therapist, I am your neighbor's mother's acquaintance who is paying you \$200 and trusting you with a cat that has a thyroid condition. But I have been alone in this house, and it was hard, and then it was not hard, and the transition happened without my permission or my planning, and I mention it only so you know that the house is a good place to be alone in, if alone is where you find yourself.

I am telling you this because I was not comfortable being alone when I first lived alone in this house, and I am comfortable now, and the distance between those two states is approximately three years. It took me three years to stop listening for Richard and start listening to the house.

The house, with its eleven plants and its cat and its creaking hallway and its kitchen faucet that drips every forty seconds, is not empty. I used to think it was. I was wrong. It is full of the things I have put in it, and the things I have put in it are not substitutes for a person. They are mine. That is different.

Take care of Wednesday. Water the fig. Be kind to the house. It has been through some changes and it is doing its best.

Miriam

P.S. The "good" plumber is Cavalcante & Sons, (908) 555-0142. The "bad" plumber is Apex Plumbing, and his number is in the yellow pages if they still make yellow pages. He replaced the wrong valve in 2018 and then argued about it for forty-five minutes in my kitchen while I stood there in my bathrobe holding a coffee mug. Do not call Apex. If a pipe breaks and Cavalcante is unavailable, call Glenn. Glenn knows pipes. Glenn knows everything. Glenn is the kind of man who has a headlamp in his glove compartment and a socket wrench in his briefcase. Ruth married well.

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"Seasonal Affective"

Temporal gap: six months

Seven emails written by Piotr Lenkov, 38, database administrator, to his ex-wife, Danielle Lenkov (now Danielle Morse), between January and July 2023. All were composed in Gmail and saved to the Drafts folder. None were sent. The Drafts folder, as of the date of this record, contains 1,247 messages, of which 1,240 are unrelated to Danielle and consist primarily of partially composed work emails, abandoned shopping links, and a draft to Piotr's mother that begins "Mom, I need to tell you something" and contains no further text.

Draft 1. January 14, 2023. 11:47 PM.

Danielle,

I want to start by saying that I understand this is probably the last thing you want to receive from me and I respect that. I do. But I think there are things that were left unsaid during the mediation and I think, for both of our sakes, it would be good to address them. I don't think either of us showed up as our best selves during those sessions and I know I certainly didn't and I want to acknowledge that.

I just think it's worth noting that I was the one who suggested counseling in March and you were the one who said we didn't need it. I'm not bringing this up to assign blame. I'm bringing it up because I think about it and I think you should know that I think about it. I was trying. I know you were trying too, in your way. But I was trying in a way that left a record, and I think that matters.

I also want to say that the thing you said about the apartment, about how I treated it like a storage unit rather than a home, was unfair. I was working sixty-hour weeks. The project migration took eleven months. Eleven months, Danielle. And during those eleven months, I was also doing the grocery shopping on Sundays and taking the car for inspection and calling your mother every other Thursday because you asked me to. Those are not the actions of someone who was absent. Those are the actions of someone who was present in the ways that were available to him.

I miss you. I don't think I'm supposed to say that yet. I'm saying it.

Piotr

Draft 2. February 3, 2023. 2:14 AM.

You know what, Danielle? The more I think about it, the more I realize that the counseling thing was just the beginning. You didn't want counseling because counseling would have required you to sit in a room and say, out loud, in front of a professional, the actual reasons you were leaving, and the actual reasons were not the reasons you gave during mediation. The actual reasons had nothing to do with "growing apart" or "different life goals." The actual reasons had to do with the fact that you met someone at that conference in Austin and you decided, somewhere between the keynote and the cocktail reception, that different was better than familiar. Don't bother denying this. I saw the phone. I'm not an idiot. I'm a database administrator. Pattern recognition is literally my job.

I am writing this at two in the morning and I know that two in the morning is not a time when reasonable men compose emails to their ex-wives. Two in the morning is a time when the apartment is quiet in the specific way that an apartment is quiet when it used to contain two people and now contains one, and the silence has a shape, and the shape is roughly the size of someone who is not here. I have been drinking. Not much. Two beers. But two beers at two in the morning when you have not eaten dinner is functionally four beers, and I know this, and I am writing anyway, and I am not going to send this, and I know that too.

Draft 3. March 19, 2023. 7:30 PM.

D,

I'm not going to send the last email. I reread it and it was ugly and you don't deserve ugly, even if some of it was true. Probably most of it was true. But true and fair are not the same thing and I'm trying to be fair, which is harder than being true, because being true just means saying what happened and being fair means deciding what parts of what happened are mine to say.

Here's what's fair: we were both tired. We had been together since we were twenty-four, which means we built our entire adult selves in the same apartment, using the same furniture, eating dinner at the same table every night for fourteen years, and at some point, the table stopped being a place where two people ate and became a piece of evidence that we were still doing this, still here, still performing the routine. The routine was the problem. Or the routine was the solution and we got tired of the solution. I don't know. Both, maybe.

Here's what else is fair: I was not easy to live with. I know this. I know that I left my shoes in the hallway and that the shoes were not the issue, the issue was that I left them in the same place every day for fourteen years and the consistency of the shoes in the hallway became, over time, a symbol of everything about me that was fixed and immovable, and you were a person who needed things to move, and I was a person who needed things to stay, and we did not figure this out until the shoes had been in the hallway for a decade and the hallway had become a place where you stopped and looked at the shoes and felt something that I could not see because I was in the other room, not looking at the shoes, because I never looked at the shoes, because the shoes were where the shoes go.

I also know that I watched television with the volume too high. I know that I fell asleep on the couch on Friday nights before the movie was finished and you would watch the last forty minutes alone and then wake me up and I would say "How did it end?" and you would tell me and I would say "That sounds good" without actually processing what you said, and you would know I hadn't processed it, and this happened every Friday for years, and I did not understand that Friday night was not about the movie. Friday night was about sitting next to each other in the dark watching something together, and the "together" was the point, and falling asleep was an abandonment I committed weekly without recognizing it as an abandonment.

I drove past the apartment last week. Someone has put a window box on the kitchen sill. Flowers. You always wanted to do that and I said the landlord wouldn't allow it. It's possible the landlord wouldn't have allowed it. It's also possible I didn't ask.

P.

Draft 4. April 2, 2023. 6:15 PM.

I saw the dog today. He looked fat. Does Marcus feed him table scraps? Marcus seems like a table scrap person.

I was at the farmers' market on Easton Avenue. I go on Saturdays now. I never went when we were together because Saturday mornings were for sleeping and then for the slow, argumentative process of deciding what to eat for brunch, which usually took longer than the meal itself and which I miss with a specificity that embarrasses me. I miss the argument, Danielle. I miss you saying "not pancakes" and me saying "what's wrong with pancakes" and you saying "nothing is wrong with pancakes, I just don't want pancakes" and this exchange taking eleven minutes. Eleven minutes of pancake negotiation. We were not good at deciding things quickly. We were spectacular at deciding things slowly.

The dog was with Marcus. They were at the olive oil tent. Marcus was sampling olive oils with the seriousness of a man who believes olive oil choices reflect character. The dog was sitting at his feet, patient and enormous. He is a good dog. I did not approach. I am not ready to be the kind of ex-husband who makes small talk with the new boyfriend at the olive oil tent while the dog, who used to be our dog, sits between us like a furry mediator. There are things I will do for the sake of maturity. That is not one of them.

Draft 5. May 11, 2023. 9:22 AM.

Danielle,

I owe you an apology for something specific, and I want to give it to you without wrapping it in context or explanation, because the context and explanation are ways of making the apology about me instead of about you.

When we went to your cousin Elena's wedding in 2019 and you wore the green dress and I said it made you look like you were trying too hard, that was cruel. It was not a passing comment.

I had thought about it before I said it. I chose the words. I watched them land. I saw your face change and I felt a small, precise satisfaction that I am now ashamed of. You wore the black dress instead. You were beautiful in the black dress, but you would have been beautiful in the green one, and the reason I said what I said was not that the green dress was wrong but that you were excited about it, and your excitement made me feel something I did not want to feel, which was the awareness that your happiness did not require my participation.

I'm sorry about the green dress. That's all.

P.

Draft 6. June 8, 2023. 8:49 PM.

[Image attached: a photograph of a sunset over the Raritan River, taken from the Route 18 bridge. The sky is orange and purple and absurdly dramatic, the kind of sunset that looks AI-generated but is not.]

You would have hated this.

Draft 7. July 9, 2023. 3:12 PM.

Danielle,

I hope you're well. I mean that, without conditions or subtext. I hope Marcus is good to you. I hope the dog is healthy, even if he's fat. I hope the window box flowers survived the heat.

I'm not going to send this. I know that now. I've known it since January, probably. I've been writing these emails the way some people keep a journal, except a journal doesn't have a recipient address auto-filled in the To field, and every time I open a new draft, your name appears at the top of the screen like a question I keep not answering.

I'm going to leave them here. In the drafts. I'm not going to delete them because deleting them would feel like deleting the months they took to write, and those months were real, even if the emails weren't. But I'm going to stop writing new ones. This is the last one. I can feel it being the last one the way you can feel the last day of a season before the calendar confirms it. Something has shifted. The air is different. I am different.

I loved you, Danielle. Not well enough and not wisely, but completely, and I want to put that here, in the last draft, in the place where it will live without being read, because saying it to your face would be an imposition and saying it to no one would be a waste and saying it to a drafts folder that you will never open is, I think, exactly the right amount of saying it.

Be well.

Piotr

The Drafts folder, as of September 2024, still contains all seven messages. The auto-save feature of Gmail has preserved each one with its original timestamp, including Draft 4, which Gmail

recorded as a 14-word email even though Piotr spent forty minutes writing and deleting other sentences before settling on the one about the dog. The deleted sentences are not preserved. Gmail's draft system saves the final state, not the process. What Piotr almost said to Danielle in those forty minutes is gone. What remains is the dog, and its weight, and the name of the man who may or may not be feeding it from the table.

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"The Annual"

Temporal gap: one year

THE FESSEY FAMILY UPDATE Holiday 2023 "Another Wonderful Year!"

Dear Friends and Family,

Well, it's hard to believe another year has flown by! As we write this from our cozy living room in Overland Park (yes, we're still here, and no, Garth still hasn't convinced me to move to the lake house full-time, ha ha!), we find ourselves reflecting on all the blessings of 2023. What a year it has been!

Let's start with the big news: Garth has embarked on an exciting new chapter! After twenty-two years with Halloran-Cates, he is now pursuing independent consulting opportunities in supply chain management. The transition has been an incredible learning experience and Garth is so energized by the freedom to choose projects that align with his values and expertise. He jokes that his new commute is "from the bed to the coffee maker," but we all know he's been burning the midnight oil building something great! We're so proud of his entrepreneurial spirit!

(What the letter does not say: Garth was laid off in March during a restructuring that eliminated his entire division. He learned about the elimination from an email sent at 4:47 AM on a Tuesday, which he read on his phone in the bathroom while Brenda was still asleep. He did not wake her. He went downstairs, made coffee, and sat at the kitchen table for ninety minutes before she came down. When she asked him what was wrong, he said "nothing" and then, four seconds later, said "I lost the job." The four-second gap between "nothing" and the truth is the most honest sentence in this letter, and it is not in this letter.

The independent consulting has produced two contracts in nine months, both from former colleagues, both short-term, both paying approximately forty percent of his previous salary. The phrase "burning the midnight oil" is accurate, though the oil in question is the light from his laptop screen in the guest bedroom, where he spends evenings revising his resume and scrolling job boards and occasionally staring at the wall with an expression that their daughter, Melanie, described to her therapist as "the look Dad gets when he forgets we can see him." Garth does not know that Melanie has a therapist. Brenda knows. Brenda pays for it from a separate checking account that she opened in April, after Garth's first unemployment check arrived and she realized, looking at the numbers, that the household was going to need a budget that could bend in places the old budget could not.)

Brenda has been focusing on wellness this year and we couldn't be more inspired! She's taken up yoga (hot yoga, no less, so you KNOW she's serious!) and has been exploring nutrition and mindfulness with a dedication that puts the rest of us to shame. She looks amazing and feels even better!

(What the letter does not say: Brenda found a lump in her left breast in February. The biopsy was benign. The six days between the discovery of the lump and the biopsy results were the longest six days of her life, longer than the three days of labor with Tyler, longer than the week her father spent in hospice in 2019. During those six days, she did not tell Garth, because Garth was two weeks away from losing his job and she could see the layoff coming the way you can see weather approaching from the west, and she decided that the household could absorb one catastrophe at a time. She told her sister, Val, on the phone, at 11 PM on a Wednesday, standing in the garage so the kids wouldn't hear. Val drove from Topeka the next morning and sat with Brenda in the waiting room at the breast center and held her hand during the ultrasound. The results came back benign and Brenda cried in the car for ten minutes and then drove to Target and bought a yoga mat and three books about inflammation. The yoga is real. The wellness is real. The inspiration is a scar that healed and left behind a woman who checks her breasts in the shower every morning with a thoroughness that her previous self would have found excessive and her current self considers the minimum.)

Tyler is taking some time to explore his options after deciding that the traditional university path wasn't quite the right fit. He's working part-time at a really neat craft brewery in Lawrence and saving up for some travel. We love his adventurous spirit!

(What the letter does not say: Tyler was expelled from Kansas State University in October of his sophomore year for an incident involving alcohol, a dormitory fire alarm, and a window on the third floor of Goodnow Hall that he exited voluntarily and without permission at 2 AM on a Saturday. He was not seriously injured. The window was fourteen feet above a landscaped berm, and Tyler landed on the berm, which is the kind of luck that a nineteen-year-old interprets as skill and his parents interpret as the last in a series of warnings the universe has been issuing since Tyler was fifteen and got caught with a bottle of Jim Beam in his backpack at a swim meet in Salina.

The call from the dean's office came on a Tuesday. Brenda answered. Garth was in the guest bedroom with the door closed, which is where Garth goes when he is applying for jobs, or revising his resume, or staring at the wall. Brenda knocked. She said, "It's Tyler." Garth opened the door and his face did the thing it does, the rearrangement from one kind of worry to another kind of worry, a lateral transfer of dread that happened so quickly Brenda almost missed it, though she did not miss it, because she has been reading Garth's face for twenty-six years and she knows every adjustment.

Tyler is working at the brewery. Tyler is not saving for travel. Tyler is living in an apartment in Lawrence with two roommates and a dog that the lease does not permit and that Brenda has

met and likes and that Garth does not know about because Tyler asked Brenda not to tell him and Brenda, against her better judgment, agreed. The word "adventurous" is doing more structural work in this sentence than any word has a right to do.)

Melanie (our baby, though she'd kill us for calling her that at twenty-three!) is THRIVING in her second year of teaching at Shawnee Mission East. Fourth grade! She says the kids keep her young and we believe it. She's also been volunteering with Habitat for Humanity on weekends, because that's just the kind of person she is. We're beyond proud.

(What the letter does not say: Melanie is the only member of the Fessey family who is accurately represented in this letter. She is, in fact, thriving. She is, in fact, teaching fourth grade. She does volunteer with Habitat for Humanity. She has a boyfriend named Joaquin who teaches biology at the same school and who Brenda likes very much and who Garth tolerates, which is Garth's version of liking very much. Melanie is the family member whose life currently fits the shape that the holiday letter requires. She is twenty-three. She has not yet arrived at the part of her life that will need translating. She will. But for now, she is the paragraph that requires no parenthetical, and her family needs her to be that paragraph.)

As for the rest of the news: we finally redid the deck (only three years behind schedule, Garth says, and I say better late than never!). The old deck had a board near the steps that had gone soft, and Garth patched it three times before I pointed out that patching a rotting board is an argument against entropy and entropy always wins. The new deck is composite. It will outlast us, which is either a comfort or a reproach, depending on how you feel about the permanence of home improvements relative to the impermanence of the people who commission them. Brenda's book club is reading some fascinating stuff this year (they started with *Demon Copperhead* and Brenda cried for three days and said it was the best book she'd read in a decade and then the book club chose a romance novel next because they needed emotional recovery time). Garth ran his first 10K in October and only complained for the last six of the K's (his words, not mine!). What the letter does not tell you is that Garth started running in April, two weeks after the last of his job applications went unanswered. He runs at 5:30 AM, before the neighborhood wakes up, on a route that takes him along the creek path behind the elementary school. He has not told Brenda why he started running. Brenda knows why. She has not told him she knows. The 10K is the only accomplishment in this letter that is both real and wholly his own, and the joke about the complaining is the costume it wears so that Garth's pride can appear in the letter without looking like what it is, which is the first thing he has been proud of since March. And we are ALL looking forward to a family trip to Branson in February. Silver Dollar City, here we come!

We feel so grateful for each and every one of you. Your friendship and love mean the world to us. Here's to a 2024 filled with health, happiness, and all good things!

With love and hugs from the whole Fessey crew, Brenda, Garth, Tyler, and Melanie

P.S. Garth wants me to tell you that if anyone needs supply chain consulting, his rates are "very competitive." I want you to know that I tried to talk him out of including this and lost.

Marriage is compromise!

This letter was photocopied at an Office Depot on 95th Street in Overland Park on December 14, 2023, using the self-service copier (black and white, 8.5 x 11, ten cents per page). Brenda made fifty copies. She addressed forty-three envelopes by hand, using the same address list she has maintained in a spiral notebook since 2006, crossing out the deceased and the divorced and adding new entries in a hand that has gotten smaller over the years, as though the addresses themselves are contracting. She uses the same return address labels she ordered from a catalog in 2015: "The Fessey Family" in a typeface meant to evoke hand-lettering, above the address, above a small illustration of a cardinal on a branch. She has three sheets of these labels remaining. She has not reordered because the catalog no longer exists and because, she told Val, "if the labels run out, maybe that's the sign to stop sending these things." Val said nothing. Val has been on the receiving end of this letter for seventeen years. Val knows what the letter costs Brenda to write, and she knows that the cost is not the ten cents per page or the stamps or the envelopes but the annual exercise of deciding which version of her family to present to the world, and then living inside the decision for the eleven and a half months until the next letter requires her to decide again.

Seven copies remained in the box that held the originals. These seven were for people Brenda considered sending the letter to and decided not to: her former college roommate, who stopped writing back in 2018; Garth's brother, Kevin, who is estranged over a dispute about their mother's estate that began as a disagreement about a dining room table and escalated into a silence that has lasted six years; the Pattersons, who moved to Scottsdale and whose Christmas card last year was a photograph of their boat, which Brenda interpreted, perhaps uncharitably, as an act of aggression; Garth's former boss at Halloran-Cates, whose name Brenda included on the list for twenty-two years out of professional courtesy and whom she removed in March with a single line of ink that she pressed so hard it tore the page; and three others whose reasons for exclusion are known only to Brenda and to the spiral notebook, where their names appear with single lines drawn through them, legible beneath the cancellation, not erased but not quite included, existing in the margin between audience and exile.

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"The Wrong Advice"

Temporal gap: nine months (a pregnancy)

Journal entries addressed to an unborn child. Writer: Nell Castellan, 29, first pregnancy. The journal is a Moleskine notebook, large, hard cover, black, purchased from a stationery store on Bleecker Street in New York City on the day the pregnancy was confirmed. The first entry is dated six weeks into the first trimester. The last entry is dated four days before the due date. Not all entries are included here. What follows is a selection that represents the arc of the correspondence.

Entry 1. August 24, 2022. Six weeks.

Little bean,

I know you can't read this. I know you are currently the size of a lentil, which is information I got from an app that compares your weekly development to produce, and which means that by February you will be the size of a watermelon, and I am trying not to think about the logistics of that. But I am writing to you because your father bought me this notebook and said, "You should write things down for her," and I said, "We don't know it's a her," and he said, "I know," and he was right, in the way that Rory is sometimes right about things he cannot possibly know, which is the most annoying and most reassuring thing about him.

Here is the first thing I want to tell you: trust your gut. I know this sounds like bumper sticker wisdom. But I mean it in the specific, practical sense. When you are in a room and something feels wrong, leave the room. When someone tells you a story that doesn't add up and your stomach tightens, listen to your stomach. Your body knows things your mind hasn't figured out yet. I have spent twenty-nine years learning this and I am still learning it and I think it is the most important thing I know.

(The reader should note: Nell's gut has been right about some things and wrong about others, in roughly equal proportion. It was right about leaving the consulting firm with the credit-stealing manager. It was right about giving Rory a second date after a first date that included a disagreement about parallel parking. It was wrong about a college roommate who stole her identity, wrong about six thousand dollars invested in a friend's restaurant that closed in eight months, wrong about graduate school. Nell does not keep this score. She remembers the victories. The gut, like most advisors, publishes its wins and buries its losses.)

Entry 5. October 12, 2022. Thirteen weeks.

Little bean (you are now the size of a peach, and I find this delightful),

Second trimester. The nausea has receded and I feel, for the first time since August, like a person instead of a hostage. Your father celebrated by making pasta, which I ate with a gratitude that was out of all proportion to the quality of the pasta, which was, frankly, overcooked, but which represented the first meal in seven weeks that I consumed without immediately calculating the probability of seeing it again.

Here is something I want you to know about money: find a career you love and the money will follow. I believe this completely. I have seen it work. Your aunt Greta is a ceramicist and she is not rich but she is happy and her happiness is the kind that comes from spending every day doing the thing she was built to do. Money is a tool. It is not a destination. Do not let anyone convince you that financial security is more important than meaningful work, because the people who say that are usually the ones who gave up meaningful work for financial security and are trying to justify the trade.

(The reader should note: Nell's parents paid for her undergraduate education at Wesleyan. Nell has never carried student loan debt. The consulting job she left, the one with the credit-stealing manager, paid \$87,000 a year, and she left it for a nonprofit position that paid \$54,000, and the difference was absorbed by savings she had accumulated while living in an apartment her parents owned in Morningside Heights and for which they charged her rent that was approximately one-third of the market rate. Whether the money followed Nell's meaningful work or whether Nell's parents followed Nell is a question the journal does not ask. Nell's aunt Greta, the ceramicist, is real. Greta is happy. Greta also lives in a rent-stabilized apartment in Bushwick that she has occupied since 1998, before Bushwick became the kind of neighborhood where a ceramicist could not afford to move in. Whether Greta's happiness proves Nell's thesis or complicates it depends on how you feel about the difference between a life chosen and a life structurally supported, and Nell, at twenty-nine, has not yet had reason to examine that difference. She will. The nonprofit will close in two years. The floor will flex. Nell will discover that the floor was never the ground.)

Entry 9. December 3, 2022. Twenty weeks.

Little bean (you are a banana now, which seems rude, but here we are),

I found out today that you are, in fact, a girl. Your father cried. He cried in the ultrasound room, openly, without embarrassment, in front of the technician, who has probably seen ten thousand fathers cry and who handed him a tissue with the economy of a person performing a well-rehearsed act of kindness. I did not cry. I was too busy looking at the screen. You have your father's nose. It is too early for me to say this with any medical authority, but I am saying it anyway. You have his nose and you will be beautiful.

Here is something about your father: he is a good man. I don't mean good in the sense of virtuous or perfect or morally superior. I mean good in the sense that his first impulse, in any situation, is to be kind. This is not a common quality. Many people's first impulse is to protect themselves, and they arrive at kindness second, or third, or not at all. Your father arrives at

kindness first and has to be talked into self-protection afterward. This will sometimes make him a difficult partner, because kindness without boundaries is a form of generosity that gives away things that belong to both of us. But it is the quality in him that I love most, and it is the quality I hope you inherit, and if you inherit it, please also inherit the ability to protect it, because the world is full of people who will see your kindness and mistake it for a resource they are entitled to extract.

Your father and I will always be a team. We may disagree. We may argue about pasta doneness and parking technique and whose turn it is to call the landlord about the radiator. But we are a team, and the team is permanent, and you will grow up inside the stability of that permanence and it will be the thing you do not notice until you are old enough to understand that not everyone had it.

(The reader should note: the team will hold for four years. It will hold through the birth, through the sleepless months, through the move from the apartment to a house in Maplewood that they buy with money borrowed from Nell's parents. It will hold through Rory's career change from teaching to administration, and through Nell's return to consulting, this time at a firm that does not steal her work. It will hold through all of this and then, in the fifth year, it will not hold. The reasons will be ordinary. The reasons will be the accumulated weight of small disappointments that neither of them mentioned because mentioning them felt like a betrayal of the team, and the silence that was meant to protect the team will be the thing that dissolves it. Rory will move to an apartment in South Orange. Nell will keep the house. The girl with her father's nose will spend weekdays with her mother and weekends with her father and she will, for a period of approximately eighteen months, believe that the arrangement is her fault, because that is what children believe, and no amount of gentle explanation will fully dislodge it. The team is not permanent. Nell's promise of permanence, written at twenty weeks with the certainty of a woman who has never broken a promise this large, is the most loving and the most wrong thing in the entire journal.)

Entry 12. January 8, 2023. Twenty-five weeks.

Little bean,

Your grandmother called today. She calls every Sunday. The call lasts between twenty-two and thirty-five minutes, depending on whether she has been to church that morning (shorter if she has, because she has already used up her allotment of opinions on the sermon and has fewer remaining for me). She asked how I was feeling. She asked if I was eating enough protein. She asked if we had decided on a name. She asked these questions in this order, which is the order she has been asking them for the past four months, and I answered them in the order they were asked, because the structure of the call is a form of love, even when the questions are repetitive, even when the advice that follows the questions is advice I did not ask for and do not need.

Your grandmother will tell you to sit up straight. She will tell you that sugar is poison. She will tell you that young people spend too much time on their phones, and she will tell you this on

her phone, and she will not notice the contradiction, and if you point it out, she will say, "That's different," and it will be different, because when your grandmother says something is different, it becomes different by the force of her certainty. This is not a quality I admire. It is a quality I have spent twenty-nine years resisting. But I am writing it down here so that when you encounter it, and you will encounter it weekly, you will know that it is not personal. It is her grammar. She speaks in declarations. She does not know how to speak in questions. And underneath the declarations, every one of them, is a woman who is afraid that the people she loves will make the mistakes she made, and whose advice, however unwelcome, is a form of trying to stand between you and the version of the world that hurt her before you arrived in it.

Take the phone calls. Eat the protein. Let her tell you about the sermon. These are small prices for what you will receive in return, which is the knowledge that someone on this earth is thinking about you every Sunday between 10:30 and 11:05 AM, and that this thinking is the closest thing to prayer that your grandmother, who considers herself a practical woman, will ever admit to performing.

Entry 14. January 28, 2023. Twenty-eight weeks.

Little bean (you are an eggplant and I am a planet),

I don't have advice today. I just want to talk to you. I felt you kick this morning while I was standing in line at the bodega on Amsterdam and I put my hand on my belly and the man behind me in line, an older man with a newspaper under his arm, looked at my hand and smiled. He didn't say anything. He just smiled. And I thought: this is it. This is the thing that is happening. You are in there. You are moving. You are a person who kicks.

I am so afraid that I won't be good at this. Not afraid in the way I expected, which was the practical fear of diapers and schedules and sleep deprivation. Afraid in the way that only became clear to me in the third trimester, which is the fear that I will give you the wrong version of myself. That I will hand you my anxieties and my blind spots and my mother's tendency to fill silence with instructions and my father's tendency to fill silence with silence. That the version of me you receive will be an incomplete draft, not the finished version, and that by the time I become the finished version, if I ever do, you will already have been shaped by the draft.

I am writing you these letters because I believe they will be useful to you someday. I believe the woman writing them is someone worth hearing from. I believe the advice is good. I believe these things the way I believe the sun will come up tomorrow, which is to say, with a confidence that has never been tested by the sun failing to appear.

But here is what I know that I did not know in August: the you who reads this will not be the you I am imagining. I am imagining a version of you that is a miniature of me, that shares my values and my fears and my taste in pasta and my belief that your father is a good man. The real you will be someone else. The real you will be a person I cannot predict, with preferences I did not install and opinions I did not authorize and a relationship to this journal that may be indifference,

or curiosity, or annoyance, or love, or some mixture of all four that I do not have the vocabulary to describe.

I am sending these letters into the future. The future is you. And you are a stranger.

I cannot wait to meet you.

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End of Part III: The Season

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PART IV

THE GENERATION

Temporal range: five years to fifty years

"Five-Year Plan"

Temporal gap: five years

HALCYON DYNAMICS, INC. STRATEGIC PLAN 2024-2029 EXECUTIVE SUMMARY CONFIDENTIAL

Prepared by the Office of the Chief Executive Officer In collaboration with the Senior Leadership Team Approved by the Board of Directors, January 18, 2024

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To the Halcyon Dynamics of 2029:

This document represents our collective vision for the next five years of growth, innovation, and value creation. It is a roadmap, a commitment, and a promise to every stakeholder in the Halcyon family. We have built something remarkable together, and this plan charts the course toward an even more remarkable future.

Sincerely, Gerald R. Toomey Chief Executive Officer Halcyon Dynamics, Inc.

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I. VISION AND STRATEGIC PILLARS

Halcyon Dynamics is a diversified industrial manufacturer headquartered in Edison, New Jersey, with annual revenues of \$412 million (FY2023) and approximately 2,400 employees across seven facilities in the United States, Mexico, and the Czech Republic. The company manufactures precision components for the automotive, aerospace, and energy sectors, with particular strength in high-tolerance machining and specialty alloys.

Our strategic vision for 2029 is simple: to become the preferred global partner for precision-engineered solutions in high-growth verticals. This vision rests on four strategic pillars:

Pillar 1: Organic Revenue Growth. We project compound annual revenue growth of 14% over the plan period, driven by market share gains in electric vehicle drivetrain components and next-generation turbine housings. By 2029, we anticipate annual revenues of \$790 million, representing a near-doubling of the current top line.

Pillar 2: Geographic Expansion. The Southeast Asian precision manufacturing market is projected to grow at 11.2% annually through 2028 (Boston Consulting Group, "Precision Manufacturing in ASEAN," September 2023). Halcyon will establish a presence in this market

through a combination of joint ventures and greenfield investment, beginning with a facility in Penang, Malaysia, targeted for groundbreaking in Q2 2025.

Pillar 3: Acquisition and Integration. The successful integration of Daimler Precision Technologies, acquired in October 2023 for \$87 million, will serve as the platform for further bolt-on acquisitions. We expect Daimler to achieve full operational alignment by Q3 of Year Two, with \$12 million in identified synergies.

Pillar 4: Talent and Culture. Halcyon's greatest asset is its people. We will invest \$18 million over the plan period in workforce development, including a new apprenticeship program, expanded tuition reimbursement, and the construction of a training center at our Edison headquarters.

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II. FINANCIAL PROJECTIONS

Revenue (in millions): 2024: \$465 / 2025: \$530 / 2026: \$610 / 2027: \$695 / 2028: \$740 / 2029: \$790

EBITDA margin: Expanding from 16.2% (FY2023) to 19.5% (FY2029) through operational efficiency, procurement optimization, and the realization of acquisition synergies.

Capital expenditure: \$145 million over the plan period, front-loaded to Years 1 and 2 to support the Penang facility and the Daimler integration.

Return on invested capital: Projected to exceed 14% by Year 3, rising to 17% by Year 5.

Dividend policy: Maintain current annual dividend of \$0.82 per share through Year 2, with targeted increases of 5-7% annually in Years 3 through 5, subject to board approval and free cash flow performance. The senior leadership team believes strongly that consistent dividend growth signals organizational health to the market and reinforces shareholder confidence during a period of strategic transformation.

Headcount: Projected to grow from 2,400 to 3,200 by Year 5, with the majority of new positions in the Penang facility (approximately 450) and in the expanded Edison engineering center (approximately 120). The remaining growth will come from the Daimler integration, which is currently staffed at 310 employees and which we project will require an additional 80 positions to support the integration of Daimler's proprietary coating technology into Halcyon's existing product lines.

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III. RISK FACTORS

The plan identifies and mitigates the following risk categories: macroeconomic volatility, currency fluctuation in target markets, supply chain disruption, regulatory changes in the EV sector, and integration risk associated with the Daimler acquisition. A detailed risk matrix is included in Appendix C. The senior leadership team has stress-tested the financial model against a range of adverse scenarios, including a 20% decline in EV adoption rates, a sustained period of dollar strength against the ringgit, and a twelve-month delay in Daimler integration milestones. Under all scenarios, the company maintains positive free cash flow by Year 3 and meets or exceeds its ROIC targets by Year 5.

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What the plan does not identify as a risk, because no plan ever does, is the plan itself.

By Year Two, Gerald Toomey will be gone. Not fired, technically. "Transitioned," which is the word boards of directors use when the firing is mutual and the severance package includes a non-disparagement clause that prevents everyone involved from saying what happened. What happened is that the Daimler acquisition, which the plan describes as a "platform for further bolt-on acquisitions," will turn out to have been purchased at a valuation that assumed revenue growth that Daimler has never achieved and will not achieve, because the due diligence team relied on projections supplied by Daimler's management, and Daimler's management had been projecting from a best-case scenario that existed only in the spreadsheet where they built it.

The Southeast Asian expansion will be shelved in Year Two, after the Malaysian ringgit depreciates 14% against the dollar in a six-month period and the joint venture partner, a family-owned conglomerate in Penang, renegotiates the terms in a way that eliminates the margin assumptions on which the entire geographic pillar rests. The groundbreaking in Q2 2025 will not occur. The site, a parcel of cleared land on the outskirts of Bayan Lepas, will revert to the landowner and eventually become a logistics warehouse for a regional e-commerce company.

The 14% compound annual growth rate will not materialize. Revenues in Year One will come in at \$441 million, below even the baseline scenario. The EV drivetrain market, which the plan describes as a "high-growth vertical," will enter a period of demand uncertainty as consumer adoption slows and two of Halcyon's three major OEM customers delay their electrification timelines. The specialty alloys division, which the plan does not mention because it is not growing fast enough to appear in a document designed to impress a board of directors, will quietly become the most profitable segment of the company, carrying the margin through three years of contraction that the four strategic pillars did not model for.

The \$18 million talent investment will be reduced to \$6 million in Year Two and eliminated in Year Three. The apprenticeship program will produce one cohort of eleven apprentices, nine of whom will complete the program and seven of whom will still be employed by Halcyon in 2029. Those seven will be among the most skilled machinists in the company. They will be the people who keep the specialty alloys division running when the CNC machines need recalibration and the

tolerance specifications require a human eye because the software does not account for the particular way that Inconel 718 behaves when it is machined at the boundary conditions that Halcyon's aerospace customers demand. The seven apprentices will know each other by first name. They will eat lunch together in the break room on the second floor of the Edison facility. They will refer to themselves, with the self-deprecating solidarity of people who survived a program that was cancelled, as "the last class." Nobody on the senior leadership team will know their names. Nobody on the senior leadership team will know that the specialty alloys division's 23% margin, the margin that is quietly keeping the company solvent during the years when the four strategic pillars are collapsing one by one, depends on seven people whose training was funded by a line item that the CFO eliminated in a budget meeting that lasted forty minutes.

Gerald Toomey will be asked to resign in September 2025. He will negotiate a severance package that includes eighteen months of salary, continuation of health benefits, and a clause that prohibits him from working for a competing manufacturer for two years. He will honor this clause, not because he respects its terms but because no competing manufacturer will offer him a position. The market for CEOs who have presided over a failed acquisition and a shelved geographic expansion is not robust. Toomey will spend the two-year non-compete period in a house in Rumson, New Jersey, that his wife, Patricia, purchased in 2019 with the proceeds of his Halcyon stock options. He will play golf. He will serve on the board of a nonprofit that provides STEM education to underserved schools, a position he accepted because a friend suggested it and because the meetings are quarterly and because the work is, unlike everything he did at Halcyon, small enough to be completed. He will not read the five-year plan again. He will not visit the Edison headquarters. He will, on one occasion in 2027, drive past the Penang site on a vacation to Malaysia with Patricia, and he will see the logistics warehouse that occupies the land where his groundbreaking was supposed to happen, and he will say nothing about it, and Patricia will not ask, because Patricia has the ability to see a wall and leave it standing.

The training center at the Edison headquarters will not be built. The architectural renderings, which Gerald Toomey presented to the board with visible pride on January 18, 2024, will remain in a presentation file on the company's shared drive, in a folder labeled "Strategic Plan 2024-2029," which will be accessed four times in the five years following its creation: once by Toomey's successor to review what was promised, once by a junior analyst preparing a board deck, once by a compliance officer responding to a shareholder inquiry, and once, in 2028, by a summer intern who opens it by accident while looking for a different file and closes it after reading the first slide, which says "Building Tomorrow, Today" in a typeface that the intern recognizes as the default PowerPoint theme.

The five-year plan cost approximately \$340,000 to produce, including consultant fees, management retreats, design and production costs, and the opportunity cost of the six hundred person-hours the senior leadership team spent in the conference room on the fourth floor of the Edison headquarters, debating whether the revenue projection for Year Three should be \$610 million or \$620 million. They settled on \$610 million. The actual revenue for Year Three will be \$487

million. The ten-million-dollar difference they argued about will be swallowed by a hundred-and-twenty-three-million-dollar gap that neither side of the argument imagined.

The plan assumed the future would behave the way the past behaved. The consultants assumed it. The financial models assumed it. The senior leadership team, sitting in a conference room with a view of the parking lot, assumed it. The future was not consulted and did not agree to the terms.

The plan will exist on a shared drive that nobody opens. The folder will stay where it is. Nobody will delete it, because deleting a strategic plan feels like an admission, and corporations do not admit. They archive.

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"To Whoever Finds This"

Temporal gap: fifteen years (approximate)

The note is written in blue ballpoint on a piece of corrugated cardboard, approximately eight inches by six inches, torn from a moving box. The handwriting is blocky and deliberate, the script of a man who is writing slowly because he wants this to be legible to someone he cannot see. The cardboard is stapled to a wooden stud inside the east wall of the kitchen of 227 Sycamore Court, West Lafayette, Indiana. It was placed there on September 22, 2009, approximately four hours before the drywall was hung. The note was discovered on March 14, 2024, when the subsequent owners removed the wall to expand the kitchen into what had been a half-bath.

The note reads:

Hello from the past.

If you're reading this, the wall is open, which means either you're renovating or the house is coming down. I hope it's the first one. This was a good house when we were in it and I'd like to think it stayed that way.

Some facts from the world you can't see anymore: gas costs \$2.61 a gallon. Obama is president. Michael Jackson died in June and the world was sad about it in a way that surprised everyone, including people who had spent the previous ten years making jokes about Michael Jackson. The Cubs have not won the World Series. My wife says they never will. My wife is from St. Louis so her opinion on the Cubs should be discounted accordingly.

My name is Ansel Moody. I'm forty-four. I teach history at Harrison High School, which is six blocks from here, and I've been teaching there for seventeen years, and if the school is still standing when you read this, I want you to know that the south stairwell has a step that wobbles. Third step from the bottom. It wobbled when I started in 1992 and it wobbled this morning and I mention it only because I have reported it to the facilities department eleven times and the step continues to wobble with a confidence that suggests it has outlasted every attempt to fix it and intends to outlast several more. If someone falls on that step after this note is opened, I want the record to reflect that Ansel Moody tried.

I'm putting this here because I like the idea that something I wrote will outlast the wall it's hiding in. This is probably sentimental. My wife, Karen, says it is sentimental. She's watching me write this from the doorway with the expression she uses when I am doing something she finds endearing and pointless, which is many things, including this, and including the birdhouse I built last spring that no bird has occupied, and including my annual letter to the Purdue Exponent

sports editor about the defensive secondary, which I have sent every September since 1996 and which has never been published and which I will continue to send because the secondary is consistently weak against the play-action pass and somebody needs to say so.

My son is three. His name is Elliot. He pronounces it EH-wee-it. He is standing next to me right now, watching me staple this cardboard to the stud, and he has contributed to the project by placing his hand flat against the stud and pressing it into the joint compound that the contractor spread on the adjacent seam. There is now a handprint in joint compound about four inches to the left of this note. It is a small hand. The fingers are spread wide. The thumb is at an angle that suggests he was reaching for something or waving at someone or just testing the feel of a cold, wet surface, which, when you are three, is reason enough.

I don't know who you are. I don't know when you are. I don't know if this house will be here in ten years or fifty or if the neighborhood will change or if Sycamore Court will still be called Sycamore Court or if there will still be sycamores. There were four sycamores on this block when we moved in. There are three now. The one at the corner of Sycamore and Lindberg came down in a storm in 2006 and the city replaced it with a Bradford pear, which is a tree that smells terrible in spring and splits in every ice storm and which nobody who knows anything about trees would plant, but which the city plants because it grows fast and looks good in the first five years and by the time it splits, the person who approved the planting has moved to a different department.

We bought this house in 2003. Karen found it. She was looking at listings online and she said, "Come look at this one," and I looked at the photograph and the photograph showed a small house with a front porch and a yard that needed work and a driveway that needed repaving and windows that looked like they had last been painted during an administration I could not identify, and I said, "Okay." Karen said, "Just okay?" I said, "It has a porch." Karen said, "Every house on this street has a porch." I said, "But this one is ours." This was not true at the time. We did not own the house for another six weeks. But the sentence was true in the way that sentences about homes are sometimes true before the facts catch up: the porch was ours because I had decided it was ours, and the decision made the fact, and the fact made the mortgage, and the mortgage made us the kind of people who have a monthly obligation that arrives with the regularity of weather and that we pay with the regularity of weather and that we will pay for twenty-four more years, assuming the weather holds.

The house has taught me things I did not expect to learn. I did not expect to learn that a house is a kind of ongoing correspondence between the structure and its occupants. The house speaks in creaks and drips and the slow sag of a roofline over decades. The occupants respond in repairs and modifications and the gradual acceptance that some problems are not problems but features, characteristics of a house that has been standing for forty-eight years and that has developed, in that time, a personality that no contractor can fully override. The kitchen floor slopes a quarter inch toward the east wall. I have measured it. I could level it. I have chosen not to, because the slope is the house being the house, and because the marble that Elliot rolls across the kitchen floor always ends up in the same corner, and the corner is a destination that the house has

chosen, and I respect the choice.

I am writing to you because I believe that the things we put inside walls matter. Not in a mystical sense. In a practical sense. This house was built in 1961. Someone has been inside these walls before me. I didn't find a note, but I found other things: a wrapper from a Zagnut bar (I don't think they make Zagnut bars anymore, but I could be wrong), a penny from 1958, and a section of newspaper from the Lafayette Journal and Courier dated November 3, 1961, with a headline about the Purdue football team that I will not reproduce here because the score was bad and some wounds do not need reopening. These objects are not messages. They are accidents. They fell behind the wall during construction and stayed there for forty-eight years, waiting for me to find them, which I did, and which made me happy in a way I did not expect, because someone else had been here, in this exact space, in 1961, and the proof of their presence was a candy wrapper and a penny and a bad football score, and that was enough.

This note is not an accident. This is deliberate. I am deliberately placing a piece of myself inside this wall so that the next person to open it will know that Ansel Moody was here, and that he had a wife named Karen and a son named Elliot who pronounced his own name wrong, and that it was September, and that it was warm, and that the contractor was a man named Rudy Molina who did good work and who charged a fair price and who is standing in the living room right now eating a sandwich and listening to the radio and who does not know this note exists.

If you find this, the wall was worth opening.

Ansel

P.S. If you are the kind of person who renovates a kitchen, you are probably the kind of person who has opinions about countertops. Karen and I spent four months arguing about countertops. She wanted marble. I said marble stains. She said she didn't care about stains. I said she would care about stains the first time someone set a glass of red wine on the marble. She said she didn't drink red wine. I said guests drink red wine. She said we didn't have guests who drink red wine. I said what about Thanksgiving. She said what about Thanksgiving. This went on until we were no longer arguing about countertops but about something else entirely, something that had to do with control and compromise and the question of whose vision of the kitchen would prevail, which is really the question of whose vision of the household would prevail, which is the question underneath every renovation, beneath every paint swatch and tile sample and plumbing fixture debate. We got granite. The granite was a compromise. Nobody won. The kitchen is beautiful. The kitchen is beautiful in the way that all compromises between two people who love each other are beautiful, which is to say: imperfectly, and exactly enough.

P.P.S. Elliot just asked me what I'm writing. I said a letter. He said who for. I said someone we haven't met yet. He considered this for approximately two seconds, which is the full duration of a three-year-old's attention span, and then he said, "Tell them hi."

So: hi.

Postscript, not written by Ansel Moody: The note was discovered by Lisa and James Underhill, who purchased 227 Sycamore Court in 2016 and who began the kitchen renovation in February 2024. The contractor, a man named Hector Vidal (not Rudy Molina, who retired in 2015 and who passed away in 2021), was removing the drywall with a reciprocating saw when he noticed the cardboard stapled to the stud. He stopped the saw. He called Lisa, who was in the living room reviewing tile samples. She came to the kitchen doorway and read the note from where she stood, not touching it, and then she went to the junk drawer and found her phone and photographed the note and the handprint before anyone touched anything else. The handprint was in the joint compound on the stud to the left of the note, as described. It was small. The fingers were spread wide. The joint compound had hardened around the impression so completely that the hand might as well have been pressing into stone.

Lisa posted the photograph on a neighborhood social media page with the caption: "Found this inside our kitchen wall. Does anyone know Ansel Moody?" Fourteen people responded within two hours. Ansel Moody still teaches at Harrison High School. He is fifty-nine. Elliot is eighteen and a freshman at Indiana University, where he is studying environmental science and where he pronounces his name correctly. Karen is still in St. Louis, which is a sentence that means two things, one of them geographic and one of them not, and which Ansel, when informed that his note had been found, addressed only in the geographic sense. "Tell them the Cubs finally won," he said, and then, after a pause: "Tell them the handprint is Elliot's."

Lisa Underhill had the section of stud containing the handprint cut out by the contractor and framed. It hangs in the new kitchen, on the wall adjacent to where it was found, next to a photograph of the note. The granite countertops that Ansel and Karen chose were replaced during the renovation with quartz. Lisa does not drink red wine either, but she chose quartz for other reasons, none of which have to do with Ansel and Karen's argument, and all of which have to do with an argument she had with James that she prefers not to discuss.

The south stairwell step at Harrison High School still wobbles.

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"The Borrower"

Temporal gap: twenty-seven years

MILLBURN PUBLIC LIBRARY MILLBURN, NEW JERSEY

RECEIVED: August 3, 2024 ITEM: *Love in the Time of Cholera*, Gabriel Garcia Marquez. Hardcover, 1st American Edition, Alfred A. Knopf, 1988. Barcode: 31001002487653. DATE DUE: November 14, 1997 OVERDUE: 9,759 days

ENCLOSED: One (1) letter from patron. Filed below.

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To whom it may concern at the Millburn Public Library,

I am returning a book I have owed you for twenty-seven years. I am aware that this exceeds the standard borrowing period. I am also aware that the fine, calculated at the rate posted on the library's website (twenty-five cents per day for overdue materials), would amount to approximately \$2,440, which is more than the book cost new and more than I paid for my first car, a 1989 Honda Civic that I bought in 1993 and that died in a parking lot in Morristown in 1999 with 187,000 miles on it, and which I mourned more than certain relationships I have had since. I am including a check for \$50, which I understand is the maximum replacement cost the library charges for a lost book, and which I offer not as a settlement of the debt but as an acknowledgment that the debt exists and that I have carried it, along with the book, for longer than I can comfortably explain.

My name is Oksana Lenkov. I was born in 1953 in Irvington, New Jersey. I worked as a librarian for thirty-one years, first at the Newark Public Library and then at the East Orange Public Library, from which I retired in 2019. I tell you this not to establish credentials but to establish irony: I am a librarian who has kept an overdue book for nearly three decades, and the shame of this fact has aged alongside me like a second skeleton, interior and load-bearing, visible only to myself.

I checked out this book on October 7, 1997. I remember the date because it was a Tuesday, and because it was the first day I left the house after what I will call, for the purposes of this letter, a difficult period. The difficult period began in August of that year and ended, or began to end, on that Tuesday in October, when I walked to the library because walking was the one thing I could still do without negotiating with myself about whether it was worth doing. I did not drive. I did not drive for three months during the difficult period because driving required a kind of

confidence in the future that I did not possess. Driving assumes you will arrive. Walking only assumes you will move. The distinction mattered to me then.

I chose this book because it was on the New Arrivals shelf and because the title contained the word "love" and the word "cholera" and I was in a condition where both of those words seemed relevant, though I could not have told you why, and because the cover was beautiful, and because I was a librarian and I believed, with the fervor of a person whose profession is a faith, that the right book at the right moment could do what medicine and conversation and the passage of time had not yet done. The faith was not wrong. The faith was early. The book arrived in my hands at the right moment, but the right moment for receiving a book is not always the right moment for reading it, and I was not ready to read a novel about love that endures across decades, because I was not sure, in October of 1997, that anything endured across decades, including myself.

I took the book home. I made tea. I sat in the chair by the window in the apartment on Elmwood Avenue, which was the only chair I sat in during those months because it faced the street and the street had traffic and the traffic was evidence that the world was continuing to operate, which was information I needed. I read to page 214. Then I closed the book and put it on the end table and did not open it again.

I did not finish the book. My bookmark, a CVS receipt dated October 1997, is still at page 214. I know this because I have checked. I have checked many times over the years, opening the book to the bookmark and reading the sentence at the top of page 214 and then closing the book again, as though the act of reading that sentence constituted progress. It does not. The sentence at the top of page 214 is the same sentence it has been since 1988, and I have not advanced past it, and I do not intend to. The book and I have reached an understanding. It will remain at page 214 and I will remain the person who brought it to page 214 and could go no further, and the twenty-seven years between then and now have not changed this arrangement, only deepened it.

I carried the book through two moves: from the apartment on Elmwood Avenue in Irvington to a house in Millburn that I shared with my second husband, Victor, and then from that house, after Victor's death in 2014, to a smaller place in Montclair where I live now. In each move, the book was packed in a box and unpacked on a shelf and placed in a position where I could see it, which I realize now was a form of penance. I could have hidden it. I could have put it in a closet or a storage unit or the trunk of my car, which by then was a 2006 Toyota Camry that was more reliable than the Honda but less loved. I did not hide it because hiding it would have been a lie, and the book, sitting on my shelf in its Knopf dust jacket with the spine only slightly faded, was a form of honesty I was not prepared to abandon.

I have thought, over the years, about what it means to keep a library book for twenty-seven years. It means, first, that I am a thief, technically, though the library's own policy converts overdue items to "lost" after sixty days, which means the book has been legally lost since December 1997, and I have been harboring a lost thing in my home for the vast majority of my adult life. It means, second, that I have been paying a kind of tax on the difficult period, a material

reminder that there was a time when I could not return things to their proper places, including myself. And it means, third, that the book has become something other than a book. It has become an artifact of a version of myself that I have spent twenty-seven years trying to leave behind and that I keep on the shelf anyway, because leaving something behind is not the same as pretending it did not happen, and the book, with its CVS receipt bookmark and its unread two hundred and thirty-four remaining pages, is my evidence that it happened.

Victor knew about the book. He found it on the shelf during our first year of marriage and said, "You've got an overdue library book," and I said, "Yes," and he said, "It's been overdue for twelve years," and I said, "Yes," and he looked at me and decided, in that moment, not to ask the question that was forming behind his eyes, and I loved him for that decision more than for almost anything else he ever did. Victor was a man who understood that some questions are not invitations. Some questions are walls, and the kind thing to do is leave them standing.

Victor was an engineer. He built bridges, actual bridges, for the New Jersey Department of Transportation, and I mention this because it is relevant. A man who builds bridges understands load-bearing structures. He understands that you do not remove a supporting element without knowing what it supports. The book on the shelf was a load-bearing structure. It supported a version of me that I had not finished building, or dismantling, or whatever it is you do with a difficult period when the period is over but its artifacts remain. Victor saw the book. Victor saw me seeing the book. Victor saw the distance between the two, which was twenty-seven years and shrinking, and he left it alone, because he was an engineer and because he loved me and because those two things, in Victor, were the same thing.

When Victor was dying, in the spring of 2014, in a hospital bed in the living room of the house in Millburn because he wanted to die in the house he had built the deck on and painted every five years and defended against carpenter ants with a tenacity that the ants did not deserve but that Victor considered a matter of principle, he said to me, "Are you ever going to finish that book?" I said, "Which book?" He said, "The one on the shelf. The one from the library." I said, "Probably not." He said, "Okay." Then he closed his eyes and the conversation was over, and he died four days later, and I have replayed that exchange several thousand times and I still do not know if he was talking about the Garcia Marquez or about the difficult period or about me, and I suspect the answer is that he was talking about all three, because Victor was an engineer and engineers are economical with language the way they are economical with materials: one word does the work of three if the load is distributed correctly.

I am returning the book now because Victor has been dead for ten years and because I am seventy-one years old and because I have started the process of what my daughter, Vera, calls "editing" my possessions, which means deciding what stays and what goes, and the book has been on the "goes" list for three years and I have not been able to move it to the donation pile because it does not belong in a donation pile. It belongs to you. It has always belonged to you. I was just keeping it warm.

Vera is thirty-eight. She is an accountant. She is practical in the way that the children of impractical parents sometimes become practical, as a corrective, as a rebuttal. She does not understand why I kept the book. She said, "Just buy a new copy and return the library's copy." I said that buying a new copy would not be the same thing. She said, "It's the same book." I said it is not the same book. The same book does not have a CVS receipt from October 1997 at page 214. The same book does not have a faint circle on the dust jacket where I once set a coffee cup on it in 2004 and immediately regretted it and spent fifteen minutes with a damp cloth trying to remove the mark and succeeded only in making the mark slightly lighter and slightly larger. The same book does not carry twenty-seven years of being looked at on a shelf by a woman who could not bring herself to read it or return it or discard it. Vera said, "That's sentimental." She was using the word the way Karen Moody, in West Lafayette, Indiana, uses the word: as a diagnosis. I did not argue. I am sentimental. I am a seventy-one-year-old retired librarian with a CVS receipt from the previous century and a coffee stain I could not fully remove and a twenty-seven-year relationship with a novel I did not finish, and if that is sentimental, then sentiment is the only accurate description of my condition, and I do not wish to be cured of it.

The book is in excellent condition. I have taken care of it. I have taken better care of it, probably, than the library would have, because the library would have circulated it and the circulation would have softened the binding and worn the dust jacket and introduced the book to dozens of readers who might have finished it, which is more than I managed. The book deserved to be finished. I am sorry I could not do it. I am sorry for the twenty-seven years. I am sorry for the \$2,440.

I am not sorry I kept it. I am sorry it took me this long to bring it back.

With respect and overdue regards, Oksana Lenkov

Attached to the letter: one personal check in the amount of \$50.00, drawn on Valley National Bank, account of Oksana Lenkov, dated August 1, 2024. The check was deposited by the library on August 5. The book was re-catalogued and returned to the circulating collection on August 12. It was checked out by a patron on August 19. The CVS receipt was discarded during processing.

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"The Capsule"

Temporal gap: fifty years

On November 8, 2024, a construction crew demolishing the condemned gymnasium of Eudora Elementary School in Eudora, Kansas, discovered a sealed PVC pipe embedded in the concrete foundation beneath the northwest cornerstone. The pipe was twelve inches long and four inches in diameter, capped at both ends with PVC cement. Stenciled on the exterior in black paint, partially obscured by fifty years of mineral deposits: CLASS OF 1974. TIME CAPSULE. DO NOT OPEN UNTIL 2024.

The capsule was opened on November 15, 2024, at a ceremony in the school cafeteria attended by forty-one people, including eleven members of the original 1974 sixth-grade class, three of their former teachers (not including Mrs. Dolores Hambly, whose attendance is addressed below), the current principal, a reporter from the Douglas County Herald, and approximately twenty community members, some of whom were related to the original participants and some of whom were simply curious, which is as good a reason as any to attend the opening of a time capsule on a Friday afternoon in November.

The contents, inventoried by the school librarian:

One: Twenty-eight letters from the sixth-grade students of Mrs. Hambly's class, each written on a single sheet of lined paper and folded into thirds. The letters were in varying states of preservation, some crisp and legible, others softened by moisture infiltration through a hairline crack in the east cap of the PVC pipe. The crack was consistent with thermal cycling over fifty years and was not the fault of whoever sealed the capsule, who did, by all evidence, a competent job.

Two: A copy of the Eudora Sentinel-Tribune, dated April 12, 1974. Front page headline: "School Board Approves New Gym." Below the fold: "Jayhawks Fall to Shockers in Conference Finale." The paper was yellowed but intact. The newsprint had transferred faintly onto the letters that were in direct contact with it, leaving ghostly reversed headlines on three students' predictions for the future.

Three: A Panasonic cassette tape, Type I, sixty minutes. Label, handwritten: "Songs We Like, 1974." Unplayable. The magnetic coating had deteriorated to the point where insertion into a playback device would have destroyed whatever remained on the tape. The school librarian, who was forty-three and who had never seen a cassette tape outside of a museum display, held it up and said, "What is this?" and one of the returning classmates said, "That is a thing that held music," and the librarian said, "Like a flash drive?" and the classmate said, "No. Like a prayer."

Four: Three Kennedy half-dollars, dated 1964, 1967, and 1971. Combined numismatic value: approximately \$14. Combined sentimental value: incalculable, because they were contributed by Robert Canales, who was eleven years old in 1974 and who had been saving Kennedy half-dollars since his father brought one home from the bank in 1964 and said, "Keep this. He was a good man and they killed him and this is what we have left," and Robert kept it and then kept two more and then put all three in a time capsule because he was eleven and because giving away something you valued was, at eleven, the highest form of commitment he knew, and because Mrs. Hambly had said to put something in the capsule that mattered, and the coins mattered.

Robert Canales was present at the opening. He is sixty-one. He is a county roads supervisor. He has a beard and a bad knee and a grandson who plays the trumpet. When the coins were removed from the capsule and identified, Robert put his hand over his mouth and did not speak for approximately fifteen seconds, which, in a cafeteria with forty-one people watching, is a long time. Then he said, "I forgot about those." Then he said, "My dad gave me the first one." Then he did not say anything else for the rest of the ceremony, though he stayed until the end and helped the custodian fold the chairs.

Five: A class photograph, black and white, 5x7, slightly curled. Twenty-eight children and one teacher arranged in three rows on the gym steps that no longer exist because the gym they belonged to was the gym being demolished. The children are squinting. The teacher, Mrs. Hambly, is not squinting. She is looking directly at the camera with an expression that the returning classmates, fifty years later, recognized instantly. "That's the look," said Tracy Wohlgermuth (now Tracy Gunderson), pointing. "That's the look she gave you when you were about to do something stupid and she wanted you to know she already knew."

Six: A sealed envelope, white, standard letter size, addressed in cursive: "To My Future Students." Contributed by Mrs. Dolores Hambly, age 34 in 1974.

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The letters from the children:

Kevin Dautrich, age 11: "In the year 2024, I predict I will be a professional football player or a astronaut or maybe both. I will live in a big house with a pool and I will have a dog named Rocket. I will drive a Corvette. I will eat pizza every day because when you are an adult nobody can tell you not to."

Kevin Dautrich is sixty-one years old. He is not a football player or an astronaut. He owns a heating and air conditioning company in Topeka. He does not have a pool. He has a dog named Biscuit. He drives a Ford F-150. He eats pizza about once a week, which is less than every day but more than his cardiologist would prefer. He was present at the opening. He read his letter aloud and laughed and said, "I really thought the astronaut thing was going to work out."

Tracy Wohlgemuth, age 11: "I predict I will have four kids and a horse. I will live on a farm. My husband will be nice and tall. I will be a teacher like Mrs. Hambly or maybe a vet."

Tracy Wohlgemuth (Gunderson) is sixty-one. She has two children, not four. She does not have a horse. She lives in a subdivision in Olathe. Her husband, Phil, is nice. He is five foot seven. She is not a teacher or a vet. She is a dental hygienist. She has been a dental hygienist for thirty-four years and she is good at it and she likes it and it is not what she predicted and it is enough. She read her letter aloud and said, "The horse is the one that stings," and the room laughed because it was funny, and because it was not funny, and because the distance between an eleven-year-old girl's certainty about a horse and a sixty-one-year-old woman's laughter about not having one is the entire width of a human life, and the room understood this, all forty-one of them, without anyone having to say it.

Sarah Yamamoto, age 11: "I predict that in the year 2024 I will live in Japan. My grandmother lives in Osaka and she says I can come when I am old enough. I will have a garden with a koi pond and I will speak Japanese fluently and I will be a translator or an interpreter. I will translate books. I will live near the ocean."

Sarah Yamamoto is sixty-one. She did not move to Japan. She lives in Prairie Village, Kansas, fourteen miles from the school where she sealed this letter. She visited Osaka once, in 1994, for her grandmother's funeral, and she stayed for two weeks and she did not speak Japanese fluently, she spoke it haltingly, with an American accent that made the relatives smile in a way that could have been warmth or could have been pity, and the trip was the closest she ever came to the life she predicted. She became an elementary school librarian, not a translator. She does not have a koi pond. She has a birdbath. She was present at the opening and she read her letter silently and then she folded it and put it in her purse and she did not read it aloud and nobody asked her to, because the room had learned, by this point in the ceremony, to recognize the letters that were private and to leave them that way.

Robert Canales, age 11: "I hope I am alive."

Robert Canales wrote one sentence. He was the only student who did not predict. He did not describe a house or a career or a pet or a vehicle. He wrote five words and folded the paper and put it in the capsule and went back to his seat. Whether he wrote only one sentence because he could not think of more, or because he was eleven and bored, or because he understood something the other children did not, is a question that the sentence does not answer and that Robert, at sixty-one, does not address. He was asked about it at the ceremony. He said, "I got my wish."

Michael Truswell, age 12 (held back from the previous year, a fact he did not mention in his letter and that the class, with the cruelty that children reserve for distinctions they do not understand, mentioned for him): "I predict I will be a millionaire and live in California. I will own a boat. I will have a beautiful wife and she will not yell. I will eat steak whenever I want."

Michael Truswell was not present at the opening. He lives in Wichita. He is not a millionaire. He does not own a boat. He has been married twice. His first wife did not yell; she was, by Michael's account in a letter he sent to the reunion committee, "the quietest person I ever met, and I didn't understand until she was gone that the quiet was a wall, not a window." His second wife yells, occasionally, and he does not mind, because the yelling is a form of engagement that the quiet was not. He eats steak when he can afford it. He did not attend the opening because he did not want to be in a room where people remembered him as the boy who was held back, even though he is sixty-two years old and the holding back happened a half century ago and nobody in the room, if asked, would have remembered or cared. Memory is not rational. The shame of twelve fits inside the body of sixty-two without losing any of its original dimensions.

Amy Sandoval, age 11: "I predict that in the year 2024 we will all have flying cars and robots that clean the house and the president will be a woman. I predict I will be a fashion designer in New York and I will be famous. I predict I will be friends with Donna Kempinski forever."

Amy Sandoval is not present at the opening. She died in 2003, at forty, of pancreatic cancer. The diagnosis came in March. She was gone by November. Eight months. The speed of it was the thing Donna could not accommodate then and cannot accommodate now, the way a life that was supposed to be long and famous and full of fashion and flying cars was instead forty years and eight months, which is not a short life by the standards of the species but is a short life by the standards of the girl who wrote "forever" on a piece of lined paper in 1974.

Donna Kempinski (now Donna Polk) is present. She is sitting in the third row of folding chairs. She does not read Amy's letter aloud. The school librarian reads it, and when the librarian reaches the word "forever," Donna's hand goes to the necklace she is wearing, a small gold pendant, and she holds it, and the holding is a gesture so private that describing it here feels like trespassing, but the gesture happened, and the necklace is relevant, and the relevance is that Amy gave it to Donna in the sixth grade, before the capsule was sealed, and Donna has worn it for fifty years, and if that is not a letter from the past, then nothing is.

Of the remaining twenty-four letters: six predicted careers in sports, four predicted careers in medicine, three predicted careers in "computers" (a word that meant, in 1974, something the size of a room and that now means something the size of a hand), two predicted that they would live on the moon, and one, from a boy named Steven Farris, predicted nothing at all but instead drew a picture of a dinosaur eating a building. Steven Farris is now a structural engineer in Kansas City. He does not remember drawing the dinosaur. He says, "That sounds like something I would have done." The dinosaur, rendered in pencil on lined paper by an eleven-year-old hand, is the only image in the capsule that is not a photograph. It is also, in the opinion of the school librarian, the best thing in the entire collection, because it is the only contribution that was not trying to be right about the future. It was trying to be a dinosaur eating a building. It succeeded.

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Mrs. Hambly's envelope was opened last. The school librarian slit it with a letter opener and removed a single sheet of paper, folded once. The librarian unfolded it, read it silently, and then read it aloud:

"If you are reading this, you lived long enough. I hope you stopped smoking. I hope you left Gerald. I hope you kept the dog. I hope the classroom was worth it, even the bad years, especially the bad years. I hope you learned to cook something other than tuna casserole. I hope the boy in the third row, the quiet one with the brown jacket, turned out all right. I hope you are standing in a room full of people who remember you, even if they remember you wrong. That's enough. That's more than enough."

The letter was not addressed to future students. It was addressed to herself.

Mrs. Dolores Hambly did not attend the ceremony. She was not present because she died on March 2, 2024, eight months before the capsule was opened. She was eighty-four. She had stopped smoking in 1981. She left Gerald in 1979. She kept the dog, a beagle named Arthur, who lived until 1988 and who was replaced, not by another beagle but by a succession of cats, each of whom Mrs. Hambly named after a president she disliked, beginning with Nixon and ending with a tabby she called Polk who outlived her by three years and was adopted by a neighbor. She taught at Eudora Elementary for twenty-nine years, from 1970 to 1999, and in those twenty-nine years she taught approximately seven hundred and twenty students, a number she calculated herself and wrote on a piece of paper that her daughter found in the desk drawer after the funeral, next to a list of the names of every student she could remember, which was not seven hundred and twenty but three hundred and eight, which she apparently considered a failure, because she had written at the bottom of the list: "I should remember them all. I don't. This is the part of teaching nobody warns you about."

She learned to make, in addition to tuna casserole, a respectable chicken mole from a recipe she clipped from the Lawrence Journal-World food section in 1985. She also learned to make cornbread that her daughter described as "the best I've ever had, including all the cornbread I've had since," and a lemon cake that she brought to every school function for twenty-nine years and that the faculty referred to simply as "Dolores's cake," which is the kind of immortality available to people who bring the same dessert to enough gatherings over enough years.

The boy in the third row, the quiet one with the brown jacket, was Robert Canales, who turned out all right.

The fifty-year gap between writing and reading is the longest that any letter in this capsule had to cross, and it was Mrs. Hambly's letter that crossed it, and it was Mrs. Hambly's letter that arrived, and it was Mrs. Hambly who was not there to receive it, because the letter was never meant for the room. It was meant for the version of herself who would open it, and that version died eight months too soon, and the letter, having traveled fifty years through PVC pipe and concrete and thermal cycles and the slow mineral patience of the Kansas earth, arrived to find its recipient gone and a room full of sixty-one-year-olds who had been eleven when the letter was

written, and who heard it as if it had been written to them, which, in the way that all letters eventually work, it was.

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End of Part IV: The Generation

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PART V

THE CENTURY

Temporal range: one hundred years to five hundred years

"The Deed"

Temporal gap: one hundred and forty years

UNITED STATES OF AMERICA DEPARTMENT OF THE INTERIOR GENERAL LAND OFFICE

HOMESTEAD CERTIFICATE No. 4,287 FINAL PROOF

To All to Whom These Presents Shall Come, Greeting:

WHEREAS, Harlan James Goss, of Sherman County, in the State of Kansas, has deposited in the General Land Office of the United States a certificate of the Register of the Land Office at Colby, Kansas, whereby it appears that, pursuant to the Act of Congress approved May 20, 1862, entitled "An Act to secure Homesteads to actual Settlers on the Public Domain," and the acts supplemental thereto, full payment has been made for the Southeast Quarter of Section Twenty-two, in Township Eight South, of Range Thirty-nine West, of the Sixth Principal Meridian, Kansas, containing one hundred and sixty acres;

NOW KNOW YE, That the United States of America, in consideration of the premises, and in conformity with the several Acts of Congress in such case made and provided, HAVE GIVEN AND GRANTED, and by these presents DO GIVE AND GRANT, unto the said Harlan James Goss, and to his Heirs and Assigns forever, the said tract above described;

IN TESTIMONY WHEREOF, I, Chester A. Arthur, President of the United States, have caused these Letters to be made Patent, and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand, at the City of Washington, the fourteenth day of April, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

By the President: Chester A. Arthur By N.C. McFarland, Commissioner of the General Land Office

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Annotations by Corinne Goss-Patel, great-great-granddaughter of the patentee, land-use attorney, Wichita, Kansas. Prepared in connection with the transfer of the above-referenced parcel to Prairie Winds Solar, LLC, October 2024.

I am writing these annotations because I was asked to prepare a title abstract for the sale of this property and because the title begins here, with this patent, and because I have been staring

at this document for three weeks and I cannot make it mean only what it says.

What it says is clear. The United States grants Harlan James Goss one hundred and sixty acres of land in Sherman County, Kansas, in consideration of five years of continuous residence and improvement. The legal language is standard for the period. The seal is intact. The signatures are authentic. The patent is valid. I have examined the chain of title from 1884 to the present and it is clean. No liens. No encumbrances. No competing claims. The land has been in the Goss family for one hundred and forty years, passing from Harlan to his son Elton in 1921, from Elton to his daughter Frances in 1953, from Frances to her son Dale (my grandfather) in 1971, and from Dale to my mother, Marian Goss, in 1997, when Dale could no longer work the land and my mother could but chose not to, and instead leased the cropland to a neighbor, Wayne Rupp, who has been growing winter wheat and grain sorghum on it for twenty-seven years and who is, as of this writing, seventy-four years old and has no successor willing to take over the lease, which is one of the reasons we are selling.

The other reasons are more complicated and have to do with water.

The patent says "one hundred and sixty acres." It does not say what is beneath those acres. In 1884, what was beneath them was the Ogallala Aquifer, a vast underground reservoir of fossil water stretching from South Dakota to the Texas Panhandle, deposited over millions of years by the slow percolation of rainfall through the Great Plains substrate. The Ogallala is not a river. It does not flow. It sits. It has been sitting since the Miocene, accumulating water at a rate so slow that the word "accumulating" overstates the activity. The water in the Ogallala is ancient. Some of it is ten thousand years old. Some of it fell as rain before the last glacier retreated from Kansas. Harlan Goss, turning the first furrow on his quarter section in the spring of 1884, was standing on top of a body of water older than agriculture.

He did not know this. The Homestead Act did not mention the aquifer because the Homestead Act did not know about the aquifer. The Act was written by legislators who understood land as surface, as soil, as the thing you could see and plow and plant. The Act required "improvement," which meant breaking the sod and building a dwelling and demonstrating, through five years of continuous occupation, that you intended to make the land productive. Productive meant agricultural. Agricultural meant crops. Crops meant water. And water, in western Kansas, meant one of two things: rain, which was unreliable, or wells, which were expensive and which, in the 1880s, could reach only the shallowest portions of the aquifer.

Harlan Goss improved his quarter section. The records in the Sherman County Courthouse show that he filed his final proof on April 14, 1884, presenting testimony from two witnesses that he had been in continuous residence for five years, that he had constructed a dwelling (a sod house, fourteen by sixteen feet, replaced in 1887 by a frame house that stood until 1934), that he had broken approximately sixty acres of prairie sod, and that he had planted wheat, corn, and sorghum in rotation. The witnesses were his neighbors, Jens Erickson and William Darnall, both of whom had filed their own homestead claims and both of whom understood the rules of the

transaction: you testify for me, I testify for you, and the government, represented by a clerk in the land office in Colby who has never visited either parcel and whose understanding of the land is entirely cartographic, accepts the testimony and issues the patent.

The patent does not mention the Cheyenne. It does not mention the Arapaho. It does not mention that the land Harlan Goss "improved" was, within living memory of 1884, part of a territory that the Cheyenne and Arapaho had used for seasonal hunting, that the buffalo grass Harlan Goss plowed under was the forage base for herds that had sustained human habitation on this landscape for thousands of years, or that the "public domain" referenced in the Act was public only because it had been made public, through treaty and removal and the systematic elimination of the people and the animals that had constituted the previous economy. The patent's silence on this history is not accidental. It is structural. The Homestead Act does not work unless the land it distributes is understood to be empty, and the land was not empty, and the Act requires the fiction of emptiness in order to function. The deed I am holding is a letter that begins with a lie, not a lie the sender knew was a lie, necessarily, but a lie embedded in the grammar of the instrument itself, in the phrase "public domain," which translates, when you trace it back through the legislative record and the treaty negotiations and the military campaigns that preceded both, to "land we took." The deed does not say "land we took." The deed says "land we give." The verb has been reversed. The direction of the gift has been reversed. The grammar makes the government the giver and Harlan Goss the receiver, and the grammar is not wrong, technically, because the government did give and Harlan did receive, but the grammar is incomplete, because it does not include the prior transaction, the one in which the government acquired the land it is now giving away, and the terms of that transaction, which were not terms at all but conditions imposed by force on people who did not recognize the authority of the people imposing them.

I write this not to argue that the homestead patent is invalid. It is valid. The chain of title is clean. The courts have confirmed it. The law is the law, and the law says this land belongs to the Goss family, and I am selling it to a solar company, and the solar company will pay market price, and the market does not adjust for the Cheyenne or the Arapaho or the buffalo grass or the grammar of prior claims. I write this because the deed is a letter, and the most important thing about this letter is what it does not say.

I am a land-use attorney. I read deeds for a living. I understand that a deed is a legal instrument, not a moral document. A deed transfers title. It does not transfer guilt or history or the memory of the grass that was here before the plow. But this deed, Harlan's deed, my family's deed, is a letter from a government to a man, and the letter says: this is yours. And the "this" includes everything the letter does not say, which is the water and the grass and the people who were here before, and the silence in which they now exist, which is the same silence that surrounds the aquifer as it drops four feet per decade beneath a surface that continues to produce crops that continue to require water that continues to be pumped from a source that continues to diminish.

The deep irrigation wells came later. The first center-pivot irrigation systems arrived in Sherman County in the 1950s, and by the 1970s, the aquifer was being pumped at a rate that exceeded its recharge by a factor of roughly ten to one. My grandfather, Dale Goss, drilled his first deep well in 1968. The water came up cold and clean and seemingly infinite, and Dale irrigated four circles of corn on the east half of the quarter section and the corn grew tall and green and profitable and the water table dropped four feet in the first decade and nobody mentioned it because four feet, beneath a surface that was producing bushels and dollars, seemed like a rounding error.

It was not a rounding error. It was the beginning of an extraction that has, over the fifty-six years since Dale's first well, lowered the water table beneath this property by approximately ninety-one feet. The well that Dale drilled in 1968 reached water at one hundred and forty feet. A well drilled today on the same spot would have to go to two hundred and thirty-one feet, and the water it found would be thinner, less pressurized, more expensive to pump, and closer to the bottom of the aquifer than to the top. The Ogallala beneath Sherman County is not empty. But it is diminished in the way that a savings account is diminished when the withdrawals have exceeded the deposits for half a century. The account is still open. The balance is still positive. But the trajectory is legible to anyone willing to read it, and the trajectory says: this is a finite resource being used as though it were infinite, by people who were told it was infinite by a government that did not know enough to say otherwise, using a deed that granted the surface and was silent about what lay beneath it.

The deed is a letter from a government to a man, written in the confident grammar of ownership. It says: this land is yours. It says: you have earned it through labor and persistence. It says: your heirs and assigns, forever. The word "forever" is in the document. I have read it many times. "Forever" is a temporal promise made by a government that was eighty-seven years old at the time of signing and that had, at that point in its history, already broken a significant number of temporal promises made to a significant number of people, most of whom were living on this land before Harlan Goss arrived and whose deeds, such as they were, were written not in ink but in the grammar of habitation, in fire circles and burial mounds and the packed-earth trails that connected seasonal camps across the grassland. Those deeds were not recognized by the General Land Office. Those deeds were not written in a language the General Land Office could read.

I am selling this land to a solar company. Prairie Winds Solar will install approximately 40,000 photovoltaic panels on the quarter section, arranged in rows running north-south on single-axis trackers. The panels will produce electricity. They will not require water. They will not pump the aquifer. They will sit on the surface of the land and collect what falls on them, which is sunlight, which is the one resource on the Great Plains that has never been in short supply, and which Harlan Goss, in 1884, standing on his new quarter section and squinting west into the light that came at him flat and bright and relentless across a hundred miles of grassland, would not have recognized as a crop.

My mother asked me if I felt guilty. She asked this on the phone, from the house in Goodland where she has lived since 1997, which is not the house where she grew up (that house, the frame house Dale built in 1968 to replace the house that replaced the sod house, was sold in 2003 to a wheat farmer who tore it down and planted the lot). She asked if I felt guilty about selling the land that Harlan homesteaded and Elton worked and Frances worked and Dale irrigated and she leased and Wayne Rupp farmed for twenty-seven years. I said no. She said, "I don't believe you." She was right. I feel something. It is not exactly guilt. It is the feeling you get when you close a book that you have been reading for a long time and you set it down and the story is over and the characters are still in there, in the pages, continuing to do the things they were doing when you closed the cover, except they are not, because the story is over, because you have stopped reading, because you have sold the book.

Wayne Rupp came to the house last week. He sat at my mother's kitchen table and drank coffee from a mug that said "World's Okayest Farmer," which my mother gave him in 2014 as a joke and which he has used every time he has visited since, which is approximately four hundred times. He said he understood. He said the water was not what it had been. He said he had known for fifteen years that the well was slowing and he had drilled a second well in 2016 and the second well was now slowing too and the cost of pumping had increased to the point where the corn penciled out only in good years and the good years were less frequent than the bad years and the sorghum was still profitable but the sorghum did not need the kind of water he was pumping, which meant the well was running for the corn and the corn was running for the market and the market was running for a world that wanted cheap grain and the world did not care where the water came from or whether it would last. Wayne said, "The water's going. Might as well catch the sun." Then he finished his coffee and drove home. He did not say goodbye to the land. Wayne Rupp is not a sentimental man. He is a seventy-four-year-old farmer who has been reading the aquifer reports from the Kansas Geological Survey for thirty years and who understood, long before I did, that the deed's promise of "forever" was written in a language that the water does not speak.

The deed is a letter from 1884 to 2024. It traveled one hundred and forty years. It arrived carrying a promise that the sender believed and the recipient cannot keep. The land is still here. The water is leaving. The light remains.

. . .

"The Frequency"

Temporal gap: two hundred and fifty years

Station log, Atlantic Seaboard Monitoring Post 11-C, Cape Disappointment, Washington Territory (formerly Cape Disappointment State Park, Washington, USA). Operator: Nils Ryberg, Second Grade Signals Technician. Log date: September 4, 2274. All times Pacific Regional.

0342. Receiver 3 flagged an anomalous signal on 1240 kHz. This frequency has not been allocated for broadcast use in the North American Signal Authority registry since the decommissioning of commercial AM radio in 2031. Receiver 3 is a legacy unit, a Collins R-390A (manufactured circa 1960, refurbished 2198), maintained as part of the Post's historical monitoring array. The array is not operational in any tactical sense. It exists because someone in the Authority decided, approximately seventy years ago, that a handful of stations along the former coastline should keep listening on the old frequencies, just in case, and nobody has since countermanded the order, and so we listen. We listen the way a church keeps a candle lit in a window. Not because anyone is expected. Because the light was there before and turning it off would mean deciding that nobody is coming, and we have not decided that. We have decided nothing. We are listening.

I should describe the post. Cape Disappointment is the southwestern tip of what was once the state of Washington, at the mouth of the Columbia River, which still flows, though its course has changed twice since the infrastructure collapses of the 2080s. The post is a concrete structure, one story, built into the hillside above the old lighthouse foundation, and it houses four operators in rotating twelve-hour shifts. We monitor the standard bands and we file reports and we maintain the equipment, which is a combination of modern solid-state receivers and the legacy units, which are vacuum-tube devices that glow orange when powered and that produce a warmth that is physiologically insignificant but psychologically considerable, particularly at four in the morning when the Pacific wind is pushing rain against the windows and the modern receivers are producing their usual silence and the R-390A is producing its usual hiss, which is the sound of the electromagnetic spectrum being empty, which is the sound of nobody talking.

Tonight, somebody is talking.

The signal presented as a carrier wave with modulated audio content. Signal strength was low, approximately 12 microvolts at the antenna terminal, consistent with a low-power transmitter operating at a distance of between 80 and 200 kilometers, assuming standard propagation conditions. Propagation at 1240 kHz is ground-wave dominant at this power level. Skywave propagation is possible but unlikely at this time of night, given the current state of the ionosphere, which has been irregular since the magnetic event of 2271 and which the Authority's

atmospheric models continue to characterize as "unsettled," a word that has been doing three years of work and shows no signs of being replaced by a more precise one.

0347. Audio content became legible. The signal carries three distinct elements in a repeating cycle:

Element One: Music. A piano recording. Degraded but identifiable as a nocturne by Frederic Chopin. Nocturne No. 2 in E-flat major, Op. 9. I identified this by ear, which I mention not to claim expertise but to explain why I did not immediately classify the signal as interference. I know this piece. My mother played it. The recording quality is consistent with early acoustic-era reproduction, possibly a transfer from an optical disc or magnetic tape to whatever medium the source station is using for playback. The piano tone is warm, with a slight wobble in the sustain that suggests the original recording predates digital correction. The performance is unhurried. Whoever is playing takes the rubato seriously.

Element Two: Weather observations. A human voice, gender indeterminate, reading meteorological data in English. The observations reference a location I cannot identify. The voice says: "Temperature, fourteen degrees. Wind from the northwest at nine. Barometric pressure, 1018 millibars and falling. Overcast. Ceiling at approximately three hundred meters. Rain expected by evening." The units are metric, the format is standard, but the location is not named, and the geographical references ("the ridge," "the lower valley," "the east channel") do not correspond to any settlement or survey point in the Authority's current database. I have cross-referenced the wind and pressure data with historical atmospheric models and the readings are plausible for several dozen locations along the former Pacific coastline, none of which currently support permanent habitation.

Element Three: A list of names followed by numbers. The voice reads them steadily, without inflection, in the manner of someone reading from a prepared text:

"Solveig Arnessen, fourteen. Thomas Beale, forty-one. Jin-woo Cho, two. Elspeth Crane, sixty-seven. Arun Desai, twenty-three. Margit Eklund, thirty-nine. Robert Foss, fifty-five..."

The list continues for approximately four minutes. I counted forty-seven names. The numbers following each name range from two to eighty-one. I do not know what the numbers represent. Ages. Days. Quantities. Codes. The names are not in any register I can access. The naming conventions span at least five linguistic traditions. The voice pronounces each name with care, as though the pronunciation matters, as though someone is listening who will know if the name is said wrong.

I have tried to determine a pattern. If the numbers are ages, the list includes individuals ranging from very young (the lowest number is two) to elderly (the highest is eighty-one). If they are ages, the list is a census. If they are days, the list could be a schedule, or an accounting, or a countdown. If they are codes, the list is encrypted and I am not the intended recipient. But the voice does not sound like a voice reading codes. The voice sounds like a voice reading names, real

names, names that belong to people the speaker knows or knew or wants to remember, and the numbers, whatever they represent, are attached to the names in a way that the voice treats as permanent, as though each name and its number form a single unit of meaning that cannot be separated without losing something essential.

The cycle repeats. Chopin, then weather, then names. The full cycle is approximately nineteen minutes. The signal has been repeating for the duration of my shift. I have listened to three complete cycles. The content does not vary. The music is the same recording. The weather observations are the same data. The names are the same forty-seven names in the same order. Whatever this is, it is a loop. It is a message that says itself over and over, the way a lighthouse says itself over and over, not because the sea has answered but because the light is what lighthouses do.

0503. I attempted to contact the source by transmitting on 1240 kHz using the post's legacy AM transmitter, a unit I have never powered on in three years at this station. The transmitter works. I transmitted a standard contact call: "Unknown station on 1240, this is Monitoring Post 11-Charlie, Cape Disappointment. Do you receive?" I transmitted this three times at five-minute intervals. There was no response. The signal continued its cycle without interruption. My transmission did not appear to affect the source in any way. Either the source is not monitoring for incoming transmissions, or the source is unmanned, or the source heard me and chose not to answer, which is a possibility I had not considered until I typed it and which I now find difficult to set aside.

0614. I submitted a report to the Authority's signals desk requesting triangulation of the source. The desk acknowledged receipt and assigned a priority code of 4 (low/non-urgent), which means they will triangulate when they have time, which means they will not triangulate. Priority 4 is where signals go to be documented and ignored, and I do not blame them, because the Authority receives approximately two hundred anomalous signal reports per year, and most of them turn out to be equipment artifacts or atmospheric echoes or, in one memorable case from 2269, a ham radio enthusiast in the Willamette Corridor who had built a transmitter from salvaged components and was broadcasting readings from Marcus Aurelius on 880 kHz every Thursday evening until the Authority asked him to stop and he said he would think about it.

0630. End of shift. I have a note for whoever takes the next watch. The signal is still present. It has not weakened. The Chopin is beautiful. I have listened to it six times now and it remains beautiful, which is something that can be said about very few things after six repetitions. The beauty is not in the performance, which is competent but not exceptional. The beauty is in the fact that someone, somewhere, chose this piece, chose it over every other piece of music that has survived the last two and a half centuries of what has not been, by any measure, a period notable for its preservation of cultural artifacts, and decided that this was the music that should go out over the air, that this was worth the power expenditure, that the world should hear Chopin on 1240 kHz at four in the morning on the coast of what used to be Washington.

Whoever sent this wanted someone to hear it. I do not know who they are or where they are or why they are broadcasting a dead man's piano music and a list of names on a frequency that nobody has used in two hundred and forty-three years. I do not know if the weather observations describe a place that still exists or a place that existed once and that the voice is maintaining in the only way available, which is to continue reporting its weather as though someone will arrive there and need to know whether to bring a coat.

I have been thinking about the names. I have been thinking about them for the last two hours, while filling out the signal report form and while drinking the coffee that tastes, as it always does at the end of a night shift, like a warm brown apology for being coffee. Forty-seven names. If the numbers are ages, then the list includes people ranging from a two-year-old to an eighty-one-year-old. A community. A village, maybe. A settlement of forty-seven people, ranging across the full span of human life, and someone in that settlement decided that the most important thing to broadcast was their names. Not a distress call. Not coordinates. Not a request for supply or rescue or contact. Names. As though the names themselves were the cargo, the payload, the thing that needed to survive the transmission, and everything else, the Chopin and the weather and the seventy-two-hour cycle and the low-power signal on a dead frequency, was just the envelope.

I keep coming back to the youngest. The two-year-old. Someone included a two-year-old on this list. A two-year-old does not write her own name on a census. A two-year-old does not volunteer for a radio broadcast. Someone put her name there. Someone decided that a child who has been alive for two years deserves to be announced on a frequency that reaches into the dark, and the announcement is not asking for anything, and the announcement is not expecting a reply, and the announcement is just: she exists. She is two. Her name is Jin-woo Cho, or her name was Jin-woo Cho, or her name will be Jin-woo Cho, depending on when the recording was made and whether the voice I am hearing is live or a loop left running by someone who is no longer present to stop it.

The signal is not communication in any functional sense. It is not requesting assistance. It is not transmitting data for a receiver that expects it. It is broadcasting into a silence that has lasted two and a half centuries, and the silence has not answered, and the signal continues anyway, on a seventy-two-hour cycle, which means it will repeat again on September 7, and again on September 10, and again and again until the transmitter fails or the power source is exhausted or the voice stops reading the names, and I do not know which of these will happen first, and I find that I do not want any of them to happen at all.

The radio wave, traveling at the speed of light, is technically a letter that was delivered on time. The problem is that no one was listening when it arrived the first time. The problem is that the letter has been arriving, over and over, for however long the transmitter has been running, and the only reason it was heard tonight is that a legacy receiver on a monitoring post at the edge of a continent happened to be tuned to a frequency that a signals technician in 2274 had no operational reason to monitor, and the only reason the receiver was on is that nobody turned it

off, and the only reason nobody turned it off is that the order to keep listening was never rescinded.

I am going to leave the receiver on.

N. Ryberg Post 11-C Cape Disappointment

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"The Archive"

Temporal gap: five hundred years

Excerpted from: Cataloguer's Report No. 2525-0041, Submitted to the Alcove Commission for Material Preservation, Lower Northeast Sector. Cataloguer: Venn Osei, Third Rank. Subject: Preliminary Assessment of the Linden Street Collection, Provenance Uncertain, Pre-Collapse Era. Date of Report: Uncertain (the Commission's calendar system, based on a twelve-season cycle adopted after the Treaty of the Narrows, does not correspond to any prior calendrical tradition in the cataloguer's reference library; for purposes of external legibility, this report estimates its own date as approximately 2525 CE, plus or minus thirty years).

The Linden Street Collection was recovered from a subsurface storage chamber beneath the ruins of a residential structure in the Lower Northeast grid, coordinates 40.7-N by 74.2-W (pre-Collapse designation: approximate area of what was once called "New Jersey," a name that appears frequently in the collection's documents and that the Commission's Linguistic Division has tentatively translated as a geographic sub-entity of a larger political body, possibly named for an island off the coast of the European landmass). The chamber was sealed by concrete debris consistent with structural collapse. Interior conditions were dry. Humidity had been regulated by natural ventilation through a fracture in the southeast wall, which admitted air but excluded precipitation. These conditions, while not ideal, were sufficient to preserve a significant portion of the collection's paper-based materials, though degradation was advanced in all cases.

The collection contains the following material categories:

Category One: Personal correspondence. Approximately three hundred letters, handwritten and printed, spanning a period of roughly twenty years (estimated from paper composition and ink degradation patterns; dates are partially legible on some items). The correspondence is primarily between two individuals, one of whom appears to have resided at the Linden Street address and one of whom resided at a location designated by a return address that includes the word "Scranton," which the Linguistic Division associates with a settlement in a region called "Pennsylvania," adjacent to "New Jersey." The letters concern domestic matters, health, family events, and, in one extended series of approximately forty letters, a dispute about a property boundary that the writer describes as "the fence situation" with an intensity that increases over the course of two years and then abruptly ceases, replaced by a silence that the cataloguer interprets as either resolution or exhaustion.

Category Two: Financial records. Tax documents, bank statements, and receipts, mostly illegible due to thermal-print degradation. The thermal-print documents have faded to blank,

which is a fact that the cataloguer finds worthy of note: the pre-Collapse era produced enormous quantities of documentation on thermal paper, a medium that was designed for short-term use and that degrades to illegibility within five to fifteen years under normal conditions. The pre-Collapse society appears to have generated its most transient documents on its most transient medium, a decision that the cataloguer does not judge but finds instructive. The carbon-copy documents retain partial legibility. The financial records suggest a household of moderate means, with recurring payments to entities that the Linguistic Division has identified as a "mortgage company" (a lending institution), a "utility" (an energy provider), and something called "Netflix," the purpose of which has not been determined. The Commission's best hypothesis is that Netflix was a subscription service related to either entertainment or food distribution, based on the frequency of the charges and the modest amounts involved. A competing hypothesis, advanced by the Linguistic Division's junior researcher, is that "Netflix" was a communications network, based on the etymological analysis of "net" (a mesh or interconnected system) and "flix" (possibly a corruption of "flicks," a colloquial term for visual media). The debate continues. The cataloguer does not have a position on Netflix. The cataloguer has been asked to focus on the paper materials.

Category Three: Medical files. Paper copies of documents that appear to be records of physical examinations, laboratory results, and pharmaceutical prescriptions. The files belong to multiple individuals, at least three of whom share the surname "Lenkov." The medical terminology is largely recognizable to the Commission's biological sciences consultants, though several pharmaceutical names are unfamiliar, and the dosage conventions differ from current practice. The files contain evidence of a chronic condition affecting one of the Lenkovs, described in repeated notations as "HTN" and "DM-2," which the consultants have identified as hypertension and a metabolic disorder. The treatment protocols are consistent with early twenty-first-century medical practice, as documented in the Commission's reference texts.

Category Four: Printed digital material. Eleven years of a personal publication, printed on standard paper stock and bound in three-ring binders that have become brittle and have split along the spine. The publication appears to be a "blog," a term the Linguistic Division has confirmed as a personal writing form common in the pre-Collapse era, characterized by dated entries of varying length published on a digital network and, in this case, subsequently printed and stored in physical form. The blog was authored by an individual identified as S. Lenkov (first name unclear; the initial appears on the printed headers but the full name does not appear in any legible entry). The entries span from approximately 2019 to 2030.

The blog entries are mundane. They concern: recipes (seven entries, including a detailed procedure for a bread called "challah" that the cataloguer has forwarded to the Commission's nutritional anthropology division, and a procedure for pickling cucumbers that includes the parenthetical observation "my grandmother would say this is wrong and my grandmother would be right, but my grandmother is dead and I am alive and the pickles are good"), weather observations (fourteen entries, all describing conditions in the local area with a specificity that suggests the author found the subject genuinely interesting rather than merely functional; one

entry, dated to what appears to be a winter month, devotes six hundred words to the description of frost patterns on a kitchen window, comparing them to "maps of countries that don't exist yet"), complaints about a neighbor's construction project (nine entries, escalating in frustration and culminating in an entry that the cataloguer has titled, for indexing purposes, "The Jackhammer Starts at Seven"), a recurring series about a cat (twenty-three entries, documenting the daily activities of an animal called "Misha" with an attentiveness that the cataloguer initially interpreted as satire but has come to believe was sincere), and various reflections on daily life that resist categorization.

Among the entries that resist categorization, the cataloguer notes the following, excerpted from a partially legible entry estimated to date from 2024:

"I wrote a blog post today about the power going out for three hours. That's it. That's the entire subject. The power went out, the power came back on, and in between I sat at the kitchen table and listened to the refrigerator not running and I thought: this is what quiet sounds like when it isn't chosen. Chosen quiet is meditation. Unchosen quiet is a message from the infrastructure saying we are not permanent, you are not guaranteed, the light in this room is borrowed."

The cataloguer observes that S. Lenkov could not have known, when writing this passage, that the distinction between chosen and unchosen quiet would become the central experience of the post-Collapse period, or that the borrowed quality of electric light, which S. Lenkov appears to have regarded as a philosophical observation, would become a literal description of conditions in the Lower Northeast within a decade of the entry's composition. The blog, in this and several other passages, describes the pre-Collapse world with an accuracy that is available only to those who are paying attention to the things that everyone else has agreed to ignore.

The cataloguer wishes to note that the S. Lenkov blog entries, while individually unremarkable, constitute in aggregate one of the most complete records of daily pre-Collapse life in the Commission's collection. The entries about weather are now primary source documents for the Commission's climate reconstruction project. The entries about the neighbor's construction provide evidence of residential building practices, noise ordinances, and neighborhood social dynamics. The entries about the cat provide data points for the Commission's study of human-animal cohabitation in the pre-Collapse era, a subject of increasing interest given the current scarcity of domesticated companion animals in the Lower Northeast. The entries about food, particularly the challah and the pickles, have been forwarded to the Commission's agricultural history division, where they will be used to reconstruct the availability and variety of foodstuffs in the urban and suburban regions of the pre-Collapse northeast.

The challah recipe has been tested by the nutritional anthropology division using available grain equivalents. The result was described as "dense but edible." The division has requested additional entries from the blog pertaining to baking technique. The cataloguer will prioritize the retrieval of any surviving pages related to this topic.

The most significant finding in the Linden Street Collection is also the most fragile. Inserted between two pages of the blog's final binder (Entry date: partially legible, estimated late 2029 or early 2030) is a single sheet of paper, folded twice, that does not belong to the blog. It is handwritten, in an ink that has faded to pale brown, and it is addressed to no one. It begins:

I am writing this because I don't know if the power will come back on and I don't know if the network will come back up and I don't know if anyone is going to read the blog anymore, or if "anymore" is even a concept that applies. The cat is sitting on the desk. The cat does not care about the network. The cat has always been right about what matters and I have always been wrong, and if this piece of paper is the last thing I write, I want the record to show that the cat was right.

The entry continues for approximately six hundred words. The cataloguer has transcribed it in full in Appendix D of this report. The transcription was difficult due to ink degradation, paper brittleness, and the author's handwriting, which deteriorates over the course of the entry in a manner consistent with emotional distress, fatigue, or both. The entry includes a passage about the sound of rain on a roof, which the author describes as "the only sound that means the same thing it has always meant," and a passage about the neighbor (apparently the same neighbor whose construction project was the subject of nine blog entries) who, at some point during the period of disruption, brought S. Lenkov a container of soup and left it on the doorstep without knocking, which the author describes as "the kindest thing anyone has ever done for me, and I will not be able to tell him because kindness of that caliber embarrasses both the giver and the receiver and the only appropriate response is to eat the soup and say nothing." The entry also includes a brief inventory of the author's remaining supplies (candles, two; batteries, unknown number, possibly dead; canned goods, "enough for a week, maybe two if Misha eats less, which she will not"), and a single sentence about the sky, which the author describes as "the same color it has always been, which means either nothing has changed or everything has changed and the sky doesn't care, and I think it's the second one."

The final sentence is partially illegible. The cataloguer's best reading is: "If someone finds this, feed the [illegible]. She likes the [illegible] in the blue bag."

The cat's name was Misha. This is established by the preceding eleven years of blog entries. Whether Misha survived beyond the date of this final entry is not known. The blue bag has not been found. The cataloguer has searched the Linden Street site for animal remains and has found none, which is consistent with either the cat's survival and departure or the cat's death and decomposition in a location outside the sealed chamber, both of which are equally probable and neither of which can be confirmed. The cataloguer notes that the absence of evidence is not the evidence of absence, a formulation that the cataloguer's supervisor has asked the cataloguer to stop using in official reports but that the cataloguer maintains is the most accurate description of the Commission's relationship to most of the pre-Collapse era.

The Linden Street Collection has been assigned a preservation priority of 2 (High) by the Alcove Commission. The paper materials will be transferred to the nitrogen vault in the

Commission's central archive within the current season. The blog binders, despite their deteriorated condition, will be preserved intact rather than disassembled, per the cataloguer's recommendation. The rationale for intact preservation is as follows: the sequence of entries constitutes a narrative, and disassembly would destroy the sequence. The final handwritten entry, inserted between the printed pages, appears to be the last text S. Lenkov produced. It is addressed to no one. It asks for nothing except that someone feed the cat. The cataloguer is not in a position to feed the cat. The cataloguer is, however, in a position to preserve the request, and has done so, per standard Commission protocol for items of cultural significance.

The cataloguer wishes to add a final observation, which the cataloguer acknowledges may exceed the scope of a preliminary assessment but which the cataloguer considers relevant to the Commission's evaluation of the collection's priority status. The blog entries about the cat were not satire. The cataloguer initially classified them as satirical based on their tone and frequency. This classification was incorrect. The entries are a record of sustained attention paid by one living creature to another, maintained over eleven years without interruption, and the cataloguer is not aware of another document in the Commission's holdings that demonstrates this quality at comparable length. The cataloguer does not have a word for what the entries are. The Commission's Linguistic Division may. The cataloguer has submitted a query.

Venn Osei Third Rank Cataloguer Alcove Commission for Material Preservation

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End of Part V: The Century

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PART VI
THE ABYSS

Temporal range: one thousand years to deep time

"The Marker"

Temporal gap: ten thousand years

Excerpted from the proceedings of the Expert Panel on Durable Markers for the Waste Isolation Pilot Plant (WIPP), Carlsbad, New Mexico. The panel was convened by the U.S. Department of Energy in 1991 to design a warning system that would remain intelligible for ten thousand years, the minimum period during which the transuranic radioactive waste stored 2,150 feet below the surface of the Chihuahuan Desert will remain hazardous to human health. The following is a reconstruction of the panel's internal deliberations, drawn from published reports, archived correspondence, and the minutes of six meetings held between 1991 and 1993. Speaker attributions have been generalized. Some names are real; some have been changed. The arguments are real. The problem they are trying to solve is one of the strangest problems any group of human beings has ever been paid to solve.

...

The problem, stated simply: how do you write a letter to someone you cannot imagine?

The waste is already there. It has been there since 1999. Twenty-six underground rooms, each approximately three hundred feet long and thirty-three feet wide, carved from a Permian salt formation that is two hundred and twenty-five million years old. The salt formation is itself a kind of letter. It was deposited by the evaporation of an ancient sea during the Permian period, when the land that is now southeastern New Mexico was a shallow basin at the edge of a continent that had not yet taken its current shape. The sea evaporated. The salt remained. Two hundred and twenty-five million years of geological pressure compressed the salt into a formation that is dense, dry, and plastic, meaning it flows, very slowly, under pressure, sealing any cavity carved into it the way a wound heals in living tissue. The rooms that hold the waste drums will, over centuries, close. The salt will creep inward, millimeter by millimeter, encasing the drums in a mineral embrace that is the geological equivalent of a fist closing. In a thousand years, the rooms will be gone. The drums will be embedded in solid salt, as though the earth had swallowed them, which it will have.

The rooms contain approximately 96,000 drums of transuranic waste: plutonium-contaminated tools, clothing, rags, soil, and sludge from the production of nuclear weapons at facilities across the United States. The waste is not the hottest material in the nuclear inventory. It is not spent fuel. It is not high-level waste. It is the debris of the process, the gloves and the shoe covers and the rags that wiped the surfaces, and it is lethal in the way that many

lethal things are lethal: not through spectacle but through duration. Plutonium-239 has a half-life of 24,100 years. A drum sealed in 1999 will still be dangerous in the year 12,000 CE. It will be less dangerous than it is now, but not safe. It will not be safe for a very long time. The half-life is patient. The half-life does not care about the marker.

The panel includes linguists, anthropologists, architects, materials scientists, astronomers, and a science fiction writer. They have been asked to design a marker that will accomplish the following: (1) warn any human being who encounters the site that digging here is dangerous; (2) communicate this warning across a span of time that exceeds the entire history of written language; (3) do so without relying on any specific language, writing system, cultural context, or level of technological sophistication, because the beings who arrive at this site in the year 12,000 may share none of these things with the beings who built the marker; and (4) survive the physical degradation of materials, including erosion, seismic activity, sand burial, and the slow patience of ten thousand years of weather.

The panel has been meeting for eight months. They have not agreed on anything.

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Dr. Vilma Pasqualini, materials scientist, University of New Mexico: "The first question is what survives. Not what communicates. What survives. If the marker does not physically persist, the message is moot. Concrete will degrade. Steel will corrode. Wood is irrelevant. The options for ten-thousand-year material survival are essentially three: massive earthwork, cut stone, and ceramic. The pyramids at Giza are four thousand six hundred years old and largely intact. Stonehenge is approximately five thousand years old. The salt flats themselves have been geologically stable for two hundred and twenty-five million years. The material exists. The question is not what to build. The question is what to write on it."

Dr. Wendell Garber, linguist, MIT: "And the answer is: we cannot write on it. Not in any language. English will not be intelligible in ten thousand years. English was not intelligible one thousand years ago. Show a modern speaker of English a text from the year 1000 and they will not be able to read it. Old English is a foreign language to a modern English speaker. Now extend that by a factor of ten. In ten thousand years, English will not exist as a language. Neither will Mandarin, or Spanish, or Arabic, or any language currently spoken on Earth. The linguistic landscape ten thousand years from now will be as different from ours as ours is from the linguistic landscape of the Upper Paleolithic. We cannot write a letter in a language the recipient does not speak."

Jon Lomberg, science illustrator and designer of the Voyager Golden Record: "Then we use pictures. We use pictographs. We use the visual grammar of danger: jagged shapes, sharp angles, the color red, if we can embed pigment in a substrate that survives ten millennia. The skull and crossbones is not universal, but the aversion to jagged, irregular forms may be. There is some evidence that angular shapes trigger threat responses across cultures. We design a visual language

of danger that does not depend on literacy."

Dr. Pasqualini: "The problem with pictures is the same as the problem with text. Pictures are culturally encoded. The skull and crossbones means 'poison' to you and 'pirate flag' to a child and 'iodine' to a nineteenth-century pharmacist. A picture of a person running away from the site could be interpreted as a picture of a person running toward it, depending on which direction the reader assigns to time. A picture of a sick person near the site could be interpreted as a picture of a person who was cured at the site. Every image we design will be read through a cultural lens we cannot predict."

Dr. Garber: "Which brings us to the architectural approach. The marker does not need to say what is here. The marker needs to make you not want to find out. The message is not 'danger.' The message is 'leave.'"

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This is where the proposals diverge.

Proposal One: The Landscape of Thorns. A field of massive concrete spikes, each fifty feet tall, erupting from the desert surface at irregular angles. The spikes are designed to produce instinctive aversion. They lean toward the viewer. They crowd together in a way that impedes passage. The visual effect, from a distance, is of a terrain that has been wounded, that is bristling, that does not want to be approached. The proposal includes a detailed psychological argument: angular, protruding forms trigger avoidance responses in humans and in many animal species. The spikes do not need to be understood. They need to be felt.

Proposal Two: The Black Hole. A massive earthwork berm, a quarter mile in diameter, surrounding the site and painted or coated with a material that absorbs light. The interior of the berm is barren. No vegetation. No water. No feature that would attract investigation. The berm is visible from the air and from the surrounding terrain and its blackness, in a desert landscape of tans and whites, is a visual wound, a place where the earth has been marked as different, as other, as wrong. The proposal argues that the absence of anything is itself a message: go somewhere else. There is nothing here for you.

Proposal Three: Silence. No marker at all. Bury the waste. Seal the shafts. Remove all surface evidence. Allow the desert to reclaim the site. In ten thousand years, the surface will be indistinguishable from the surrounding landscape. The waste is 2,150 feet below the surface. No one digs that deep without industrial technology, and if they have industrial technology, they presumably have radiation detection, and if they have radiation detection, they do not need a marker. The argument for silence is that any marker is a failure, because the act of marking a site as dangerous inevitably attracts investigation. "We are designing a sign that says DO NOT DIG HERE," the proposal's author writes, "and we know, with certainty, that the sign will make people dig."

The panel cannot agree. The panel has spent eight months trying to write a letter to the year 12,000 and the letter keeps failing, not because the language is wrong or the materials are inadequate or the budget is insufficient, but because the letter requires the sender to know something about the recipient, and the sender knows nothing. The sender does not know what language the recipient speaks. The sender does not know what the recipient's concept of danger is. The sender does not know if the recipient has a concept of government, or of radioactive decay, or of warning, or of kindness. The sender does not know if the recipient is human.

There is a fourth proposal that is not officially a proposal but a recurring theme in the panel's private conversations. It surfaces in the minutes as "the hostile architecture approach." The idea: forget language, forget pictographs, forget mathematics. Design a structure that produces physical discomfort in any being that approaches it. A geometry that produces infrasound, frequencies below the threshold of human hearing that have been shown to produce sensations of unease, nausea, and dread. A landscape that funnels wind in a way that produces a sound the panel's acoustician describes as "the sound a building makes when it is angry," which is not a scientific description but which, when the acoustician played a recording of the prototype at the March meeting, caused three members of the panel to shift in their chairs and one to leave the room. The approach does not require the recipient to be literate, or to speak any language. It requires the recipient to have a body.

The problem, as Dr. Garber points out, is that it is a letter written in the grammar of threat, and the recipient of a threat has two responses: avoidance or confrontation. "We are betting," Garber says, "that every being who encounters this site for ten thousand years will choose avoidance. That is a bad bet. Humans, specifically, respond to threat with curiosity approximately forty percent of the time, and the forty percent who respond with curiosity are exactly the people who dig."

Dr. Pasqualini, in the final meeting, said: "We are being asked to do something that language has never done: communicate across a gap so wide that the concept of 'communication' may not survive the transit. Every letter in the history of correspondence has been written by a sender who could at least imagine the recipient. A mother writing to her child can imagine the child. A government writing to its citizens can imagine the citizenry. We cannot imagine our recipient. We are writing to a blank. And the blank is not empty. The blank is full. It is full of everything we do not know, which is everything."

The panel's final recommendation, delivered in 1993, is a compromise. It proposes a system of concentric barriers, from outer earthwork berms to inner granite monoliths inscribed with warnings in the six official languages of the United Nations plus Navajo, the dominant indigenous language of the region. The monoliths also carry pictographic representations of human distress (a face in anguish, a body recoiling, a hand raised in the universal gesture of "stop"). Buried beneath the monoliths, in sealed rooms accessible only through deliberate excavation, are more detailed messages explaining the nature of the waste, the risks of exposure, and the depth and extent of the repository.

The system is designed to degrade gracefully. The outer berms will erode first, over centuries, leaving a visible scar on the landscape. The monoliths will endure longer, perhaps five thousand years. The buried rooms, sealed in granite and salt, may survive ten thousand. The theory is that each layer of the marker speaks to a different level of technological sophistication. The berms speak to anyone. The monoliths speak to anyone who reads. The buried rooms speak to anyone who can excavate and interpret. The system assumes that someone, somewhere in the ten-thousand-year span, will be listening.

The system has not been built. As of 2024, the WIPP site is marked by a chain-link fence and a series of signs in English that say: "CAUTION: RADIOACTIVE MATERIAL." The ten-thousand-year marker remains a proposal, a set of architectural drawings and committee minutes and expert testimony, stored in a federal archive, which is itself a kind of letter, written by a group of people who understood, with rare clarity, that they were trying to communicate with a future they could not reach, and that the failure of their communication would be measured not in embarrassment but in bodies.

The ten-thousand-year gap exceeds the lifespan of written language. The panel knew this. Their proposed marker is an attempt to communicate across a span wider than the entire history of literacy, and they proceeded anyway, because the alternative was silence, and the waste does not care about silence. The waste will be there in ten thousand years. Whether anyone will know to stay away depends on whether a committee in New Mexico in 1993, working with budgets and deadlines and institutional politics and the best ideas they could generate in six meetings, managed to write a warning that a civilization they cannot imagine will be able to read.

They were not confident. They said so. The final report uses the word "reasonable" seven times in its conclusions, which is the word expert panels use when they believe something is true but cannot prove it, and when the consequences of being wrong are measured not in embarrassment but in exposure levels.

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"The Code"

Temporal gap: one million years (approximate)

Final laboratory notebook entry. Dr. Fen Adeyemi, Senior Research Fellow, Department of Synthetic Biology, National University of Singapore. Date: December 3, 2031. Notebook #47, page 316.

The insertion was successful. The sequencing confirmed it at 14:22 this afternoon, and I sat at my bench for approximately ten minutes looking at the readout before I stood up and walked to the window and looked at the construction crane across the road, which has been there for six months and which I have been watching through this window for six months and which I now realize I have been using as a landmark of normalcy, a thing that exists in the present tense and does nothing except build, and I needed to look at it because what is on my screen is not normal. What is on my screen is the first successful inscription of a synthetic data sequence into the non-coding region of the *Deinococcus radiodurans* genome, confirmed stable through four hundred generations of replication.

Four hundred generations. The bacterium divides approximately every eighty minutes under optimal conditions. Four hundred generations is roughly twenty-two days. In twenty-two days, the message I wrote into the genome has been copied four hundred times by an organism that does not know it is carrying a message, that has no concept of "message," that is simply doing what it has always done, which is replicating its DNA with a fidelity that would embarrass any human information storage system ever devised. The error rate in *D. radiodurans* DNA replication is approximately one mistake per billion base pairs per generation. One per billion. The hard drive on my desktop computer, which is three years old and which makes a sound like a small animal when it boots, has an error rate approximately ten thousand times higher. The bacterium is a better archivist than anything my species has built.

I chose *D. radiodurans* because it is the most radiation-resistant organism known to science. It can survive doses of ionizing radiation that would sterilize steel. It can survive desiccation, vacuum, extreme cold, and the kinds of environmental insults that would kill every other bacterium in its phylum. It lives in granite. It lives in the coolant pools of nuclear reactors. It lives in the dry valleys of Antarctica. It has been alive, as a species, for approximately two billion years, which means it was alive before complex multicellular life existed on this planet, and it will almost certainly be alive after complex multicellular life has ceased to exist, and during that interval, it will continue to replicate its DNA with a fidelity of one error per billion, carrying whatever is written in its genome forward through time with an indifference that I find, as a scientist, beautiful, and that I find, as a person, terrifying.

The message I inscribed is a mathematical proof. Specifically, it is a compact representation of the Pythagorean theorem, encoded in a quaternary base system that maps to the four nucleotide bases (A, T, C, G). The encoding scheme is described in a paper I published last year and in a sealed deposit at the National Library, and the scheme itself is designed to be discoverable: the first segment of the encoded sequence contains a primer, a repeating pattern that signals artificiality to any competent genomic analyst, followed by a key that allows the remainder to be decoded. The message is short. The proof is elegant. The mathematics is universal, or as close to universal as anything humans have produced, because the Pythagorean theorem does not depend on language or culture or the specific configuration of biological cognition that we happen to possess. It depends on right triangles. Right triangles will exist as long as space has dimensions.

I chose a mathematical proof because I trust mathematics to survive the death of every human language. I do not trust English. I do not trust Mandarin. I do not trust the pictographic systems that well-intentioned committees have designed for ten-thousand-year nuclear waste markers. I trust the relationship between the squares of the sides of a right triangle, because that relationship was true before humans discovered it and will be true after the last human has failed to remember it, and because any being capable of sequencing a genome is, by definition, capable of recognizing a mathematical pattern, and the pattern will say: this was placed here. This is not random. Someone was here.

I should describe the encoding. The quaternary base system maps the digits 0, 1, 2, 3 to the nucleotide bases A, T, C, G. The proof is expressed as a sequence of numerical relationships, beginning with the primer (a repeating ATCG pattern, 16 bases long, repeated twelve times, which any genomic analyst would immediately recognize as non-biological in origin, because biological DNA does not repeat with that kind of mechanical regularity). After the primer comes the key: a short sequence that encodes the mapping rules, followed by the proof itself, which is compact, forty-seven base pairs in the core expression. Forty-seven base pairs. The bacterium's genome is 3.2 million base pairs long. My message occupies 0.0015% of the total genome. It is a whisper in a library. It is a marginal note. It is the kind of inscription that could be mistaken for noise by a careless analyst and that would be unmistakable to a careful one, because the primer is too regular, too insistent, too clearly artificial. The primer is the hand waving from across the canyon. The proof is what the hand is holding.

The non-coding region I chose for the insertion is a stretch of DNA between two essential genes, a region that the bacterium does not use for any known function and that mutation studies have shown can tolerate insertions of up to two hundred base pairs without affecting viability. The bacterium does not need this DNA. The bacterium carries it because evolution is conservative and because the cost of carrying a few hundred extra base pairs is, for an organism that survives nuclear radiation, negligible. The non-coding region is a blank page in the bacterium's book, and I have written on it, and the bacterium will carry my writing forward without knowing it is carrying anything, the way a river carries a bottle without knowing it contains a message.

I have thought about this: that the bacterium is alive. This is not a hard drive. This is not a stone tablet. This is not a message carved into granite or etched into gold or painted on a cave wall. This is a living organism, and the message I have placed inside it will be replicated by the machinery of life itself, by the same enzymes and polymerases and proofreading mechanisms that have been copying DNA since life began on this planet. The message does not sit in a vault. The message divides. The message reproduces. The message, right now, at this moment, in the incubator three feet from my bench, is being copied into a new bacterium that did not exist eighty minutes ago, and that new bacterium will copy it into another, and another, and the chain of copying will extend forward into time in a way that no human archive can match, because human archives require maintenance and climate control and the continued existence of institutions, and the bacterium requires only a substrate on which to grow and a temperature range that has existed on this planet for the last three and a half billion years and that will exist for at least another billion.

I have placed a human thought inside a non-human organism. The thought is mathematical. The organism is bacterial. Neither of them cares about the other. The thought does not improve the bacterium. The bacterium does not understand the thought. They are strangers sharing a body, and the sharing will persist for longer than any relationship between any two organisms in the history of this planet, and neither party will know the other is there.

That is the message. Not "hello." Not "we come in peace." Not a recipe for challah or a list of names or a weather report from a place that no longer exists. The message is: someone was here and they understood the relationship between a squared and b squared and c squared, and they inscribed that understanding into a living thing, and the living thing carried it forward, through however many million years of replication and mutation and survival and extinction and ice age and warming and catastrophe and silence, until you found it.

But here is what I did not put in the paper, and what I am writing in this notebook, which is a private document that I have kept since my first year of graduate school and that I have never shared with anyone, including my wife, including my daughter, including the three PhD students who work in my lab and who think I am writing up today's results for the departmental meeting on Friday:

I almost encoded my daughter's name.

I almost encoded "Adaeze," which is my daughter's name, which means "the king's daughter" in Igbo, which is the language my father spoke and which I do not speak with any fluency, a fact that my father found disappointing and that I find, at forty-seven, a loss I cannot repair. I almost wrote her name into the genome of an organism that will carry it for a million years, because my daughter is seven and she will not be seven again, and the version of her that is seven, the version that calls me "Papa-doctor" and believes that I go to work every day to "fix the tiny animals," is the version I want to preserve, not in amber or in ice but in the one medium that has proven itself capable of surviving everything the planet has thrown at it for two billion years.

I did not encode her name. I encoded the Pythagorean theorem. This was the correct decision. A daughter's name, however beloved, is not a message that a future civilization can decode. A daughter's name, inscribed in the genome of a bacterium, would look like noise. It would be noise, to any analyst who does not know that the specific sequence of A's and T's and C's and G's spells, in an Igbo-English encoding scheme that exists only in the mind of a woman standing at a lab bench in Singapore looking at a construction crane, the name of a seven-year-old girl who calls her mother "Papa-doctor."

The mathematics was the right choice. The mathematics will survive. The mathematics will say: someone was here.

But tonight, after I close this notebook and turn off the lights and walk to the parking structure and drive home through the evening traffic on the expressway, I will park in the driveway and I will sit in the car for a moment before I go inside, and I will think about the version of this experiment where I chose differently, where the message traveling forward through a million years of bacterial replication is not a theorem but a name, and the name is Adaeze, and the name means nothing to the beings who find it, and the name means everything to me, and the gap between those two meanings is the width of the entire experiment, which is the width of all correspondence, which is the distance between what we send and what arrives.

I will go inside. Adaeze will be at the kitchen table doing her homework. She will say, "Papa-doctor, what did you fix today?" I will say, "Something very small." She will accept this, because seven-year-olds accept answers that are true and incomplete, which is the only kind of answer anyone ever gives.

The bacterium does not know it is carrying a message. The bacterium does not know it is an envelope. The bacterium is alive, and it will stay alive, and it will carry the theorem forward into a future that neither of us will see, and the theorem will arrive, and the theorem will say what I could not bring myself to say, which is not "a squared plus b squared equals c squared" but "someone was here, and she had a daughter, and the daughter's name was the one thing she could not write down, because writing it down would have meant admitting that she was sending it away."

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"What the Light Carries"

Temporal gap: 4.24 light-years and expanding

The nearest star is Proxima Centauri. It is 4.24 light-years from Earth, which means the light you see when you look at it (and you cannot see it without a telescope; it is a red dwarf, too dim for the naked eye, hiding in the constellation Centaurus behind its brighter siblings) left the star 4.24 years ago. The light is old. Not ancient, by the standards of this book, which has handled gaps of ten thousand years and ten million. But old enough. Old enough that the version of Proxima Centauri you observe is not the version that exists at the moment of observation. You are looking at a memory. The star may have flared since the light departed. It may have dimmed. It may, in some catastrophic and statistically improbable scenario, have ceased to exist, and you would not know for another 4.24 years, and during those years, you would continue to see a star that was no longer there, a ghost photograph, a postcard from a sender who has already left the address.

This is not a metaphor. This is optics.

All observation is temporal displacement. The moon you see is 1.3 seconds old. The sun is 8 minutes and 20 seconds old. Jupiter, at its closest approach, is 33 minutes old. The Andromeda galaxy, the nearest large galaxy to the Milky Way, is 2.5 million years old by the time its light reaches your retina. When you look at Andromeda, you are seeing it as it was when the genus *Homo* was just beginning to separate from its australopithecine ancestors. The light that left Andromeda on the night you are reading this sentence will arrive at Earth 2.5 million years from now, and it will carry the news of tonight's Andromeda to whatever is here to receive it, and whatever is here may or may not have eyes, and may or may not have telescopes, and may or may not have the concept of "news," but the light will arrive regardless, because light does not require a recipient. Light does not require permission. Light goes.

The cosmic microwave background radiation is the oldest light in the universe. It was emitted approximately 380,000 years after the Big Bang, at the moment when the universe cooled enough for atoms to form and for photons to travel freely without being absorbed by the plasma that had, until that moment, made the universe opaque. The CMB is 13.8 billion years old. It is the first letter. It was sent before there were planets, before there were stars, before there were molecules, before there was anyone to send it to. It was not sent at all, in the intentional sense. It was released. The universe became transparent, and the light that had been trapped inside it escaped, in every direction, at the speed of light, and it is still escaping, still arriving, still being received by radio telescopes and satellite instruments and, on a very quiet night in a very dark place, by the faint static between stations on an AM radio, which is the sound of the oldest letter in

the universe arriving at a receiver that was not built for another 13.8 billion years.

The CMB is uniform. It is the same temperature in every direction: 2.725 Kelvin, plus or minus a few hundred-thousandths of a degree. The tiny variations, those hundred-thousandths, are the seeds of every galaxy, every star, every planet, every person who has ever written a letter or received one. The variations are the original message, and the message is: the universe was not perfectly smooth. It was almost smooth. Almost, but not quite. And in the "not quite" is everything. In the "not quite" is the Milky Way and the solar system and the Earth and the Pacific Ocean and the Chihuahuan Desert and a kitchen in Cranford and a cockpit over Chicago and a library in Millburn and a classroom in Eudora and a laboratory in Singapore and a monitoring post at Cape Disappointment and a sealed chamber beneath the ruins of New Jersey and you, reading this, wherever you are, whenever you are, which is now, which is always now, which is the only time there is.

If you go outside tonight and look up, assuming the sky is clear and the light pollution is not too severe (and for most of human history the light pollution was not severe at all; the night sky was the most reliable letter the universe delivered, arriving every evening, legible to anyone who looked up), you will see approximately five thousand stars with the naked eye. Each one is a letter. Each one is arriving from a different moment in the past. Sirius, the brightest star in the sky, is 8.6 light-years away; its light is showing you the star as it was when a child who is now nine years old was being born. Betelgeuse, the red giant in Orion's shoulder, is approximately 700 light-years away; its light left the star during the fourteenth century, when the Black Death was spreading across Europe and nobody on Earth knew that the light departing Betelgeuse at that moment would arrive at a planet that had been fundamentally altered by the events occurring as the photons departed. The light does not carry the Black Death. The light does not carry the fourteenth century. The light carries only Betelgeuse, the Betelgeuse of 1340, a star that may or may not still exist in the form the light describes, because Betelgeuse is a star that is expected to explode, and "expected" means within the next hundred thousand years, which is soon by stellar standards and meaningless by human ones, and the explosion may have already happened, and we will not know for seven hundred years, and during those seven hundred years we will continue to see a star that is no longer a star, a letter from a sender who has already left.

This is the night sky: a post office of the dead and the dying and the indifferent, delivering letters that were not written to us and that we read anyway, because reading is what eyes do, and looking up is what humans do, and the combination of eyes and altitude and darkness has produced every religion and every astronomy and every love poem that references the stars, all of which are, at their foundation, responses to the same phenomenon, which is the arrival of old light at new eyes.

Light carries everything. It carries heat. It carries information. It carries the spectral signatures of the elements that compose distant stars, which is how we know that the universe is made of the same stuff everywhere, hydrogen and helium and carbon and oxygen and iron, the periodic table written in light and sent across distances so vast that the word "distance" loses its

meaning and becomes, instead, a synonym for "time." Light carries the evidence of events that have already happened. Every photon that reaches your eye is a report from the past. The report is accurate. Light does not lie. Light does not editorialize. Light does not decide what to include and what to leave out. Light carries everything it was given at the moment of emission, and it delivers it, unchanged, at the moment of absorption, and the gap between those two moments is, from the photon's perspective, zero.

This is not a metaphor either. This is special relativity.

A photon traveling at the speed of light experiences no time. This is a consequence of Einstein's equations, and it is as close to experimentally confirmed as any claim in physics can be. From the photon's frame of reference, the moment of emission and the moment of absorption are the same moment. The photon does not experience transit. The photon does not experience delay. The photon does not wait. The photon is emitted by a star 4.24 light-years away and absorbed by a telescope on a hilltop in Chile, and the 4.24 years that elapsed for the astronomer at the telescope did not elapse for the photon. The photon's experience of the trip was instantaneous. The gap was zero.

Every letter in this book has been about the gap. The surgeon dictating to her future self across one second. The first officer whose breathing was recorded and overwritten. The grocery list, the recipe card, the gas bill envelope, the five-year plan, the time capsule, the deed, the radio signal, the cataloguer's report. Each one attempted to send meaning across a gap, and each one contended with the distortion that the gap introduces: the reader who is not the person the writer imagined, the context that has shifted, the language that has decayed, the recipient who has died, the world that has changed.

But from the message's perspective, from the photon's perspective, the gap is zero. The message leaves the sender and arrives at the receiver in the same instant. The father's note on the gas bill envelope and the encoded bacterial DNA and the handprint in the joint compound and the seven unsent emails and the forty-seven names on a radio frequency that nobody was monitoring are all, from the message's frame of reference, arriving right now. They have always been arriving right now. They will always be arriving right now. The gap is a property of the receiver, not the sender. The message does not know it is late.

This is the condition of all correspondence. A sentence written at noon and read at six is, from the sentence's perspective, simultaneous. The sentence does not experience the afternoon. The sentence does not age. The sentence is the same sentence at six that it was at noon, carrying the same meaning, the same weight, the same arrangement of letters in the same order. What has changed is not the sentence. What has changed is the reader, who has lived through six hours that the sentence did not share, and who brings to the sentence everything those six hours contained: the phone call, the weather, the slow change of light across a kitchen table, the news, the silence, the forgetting of small things and the remembering of others. The sentence arrives in a different country than the one it was sent from, and the sentence does not know this, because the sentence

is light, and light does not know anything, and light does not need to.

The title of this book is a question disguised as a phrase. What does the light carry? The answer is: everything the sender gave it and nothing the receiver needs. The light carries the surgeon's voice, not the outcome of the surgery. The light carries the smell of mole negro, not the taste. The light carries the names on the radio frequency, not their meaning. The light carries the mathematical proof, not the daughter's name. The light carries what was, not what will be. And the receiver, standing on the other side of the gap, holding the arrived message in her hands, must supply everything the light left out: the context, the interpretation, the grief, the recognition, the laughter, the decision about whether this letter, this particular letter, among the billions of letters that arrive every second from every star in the sky, is the one that was meant for her.

It probably was not. Most letters are not. Most light is not meant for anyone. Most photons travel the entire width of the universe without being absorbed, without being received, without being read. They pass through the void and continue traveling and will continue traveling until the universe itself is too cold and too dark and too expanded for light to reach anything at all, which will happen, eventually, in the deep future that this book has been approaching since its first sentence, the future in which all gaps are infinite and all letters are permanent and no receiver remains.

But not yet. Not tonight. Tonight the light is still arriving. Tonight the photons from Proxima Centauri are striking the mirror of a telescope in Chile, and the cosmic microwave background is arriving at a satellite in orbit, and the light from the kitchen lamp is falling on a page that someone is reading, and the page is this page, and the reader is you, and the light that carries these words left the screen or the paper or wherever you are encountering them at some moment in the past, a fraction of a second ago, less than a blink, and in that fraction of a second, the words became old, and you became new, and the gap between the two is the smallest gap in this book, and it is the same gap as all the others, and it is zero, and it is everything.

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End of Part VI: The Abyss

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EPILOGUE

ALREADY READ

You are here. You are the future these words were sent to find. You were always the future. You were the future when you opened the book and you are the past now that you have finished it, because finishing a book is an act of leaving, and the person who leaves is never the person who arrived, and the difference between those two people is the book, which is the gap, which is the light, which is already behind you, which is already gone.

This book was a letter. It was written in the past tense and read in the present and it has now entered the past tense again, the permanent and unrecoverable past of things that have been read and cannot be unread, and the version of you who began reading it no longer exists, having been replaced, sentence by sentence, by the version of you who is reading this one, who will be replaced, in the time it takes to reach the period at the end of this sentence, by the version of you who has read it. The relay is continuous. The relay is what being alive is. Every breath is a letter from the version of yourself who inhaled to the version of yourself who will exhale, and the two are not the same, and the air does not care, and the light does not care, and the book, which is finished, which is already behind you, which is already in the past, does not care either, because the book has done the only thing a book can do, which is to send itself forward and hope.

The door closes softly. The house is empty. Someone has just left.

Author's Note

This book began with a question about the sun: if sunlight is eight minutes old by the time it reaches us, then we have never seen the present sun. We have only ever seen its past. That fact, which is not a metaphor but a measurement, became the organizing principle for everything that followed.

The twenty-one letters in this book are fiction. The people are invented. Many institutions, addresses, and events are invented, though some real places, facilities, and forms appear where the book's documentary texture requires them. But the forms are real. Surgical dictation follows actual operative reporting conventions. The cockpit voice recorder transcript uses standard CVR formatting. The Homestead Act patent reproduces the legal language of actual land patents issued under the Act of May 20, 1862. The nursing shift report reflects the structure and idiom of handwritten ICU reports as they existed before the universal adoption of electronic charting. The corporate strategic plan follows the conventions of actual five-year plans as produced by mid-cap industrial companies. In every case, the literary effect depends on fidelity to the form. If the form does not feel authentic, the human residue that seeps through it loses its power.

The Waste Isolation Pilot Plant is real. It is located in southeastern New Mexico, approximately twenty-six miles east of Carlsbad. The transuranic waste stored there is real. The ten-thousand-year hazard period is real. The expert panel convened by the Department of Energy to design a durable marker system was real, and the proposals described in "The Marker," including the Landscape of Thorns, the Black Hole, and the Silence option, are based on proposals documented in the actual panel report, published by Sandia National Laboratories in 1993 as *Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the Waste Isolation Pilot Plant*. The specific dialogue and panel members in my letter are fictional, but the arguments are drawn from the real proceedings, which remain some of the most extraordinary documents in the history of human communication.

The Ogallala Aquifer is real. Its depletion in western Kansas is real and is well documented by the Kansas Geological Survey. The rate of decline, the history of center-pivot irrigation, and the relationship between the Homestead Act and the aquifer's exploitation are drawn from published sources. The Goss family and their quarter section are fiction.

Deinococcus radiodurans is a real organism. Its radiation resistance, its error rate in DNA replication, and its survival characteristics are accurately described. The inscription of synthetic data into non-coding DNA regions is an active area of research. Dr. Fen Adeyemi and her experiment are fiction.

A note on the title: every photon that reaches your eye is a report from the past, and in the limit as velocity approaches the speed of light, transit time approaches zero. This is special relativity, not poetry. The poetry is in the fact that we are built to receive old light and call it new.

David Boles New York City 2026

Sources and Forms

"Runway Four Left." Meridian Regional Airlines is fictional. The Bombardier CRJ-200 is a real regional jet. All aviation terminology, radio communications protocols, and cockpit voice recorder formatting follow actual FAA and NTSB conventions. The flap positions (20 and 45 degrees) are correct for the CRJ-200 type.

"Recipe Card." Mole negro is one of the seven moles of Oaxaca and is among the most complex dishes in the Mexican culinary tradition. The recipe on the card is simplified for the 4x6 format but reflects authentic technique.

"The Borrower." The Millburn Public Library is a real institution in Millburn, New Jersey. The overdue fine rate and lost-book policy described in the letter are fictional. *Love in the Time of Cholera* by Gabriel Garcia Marquez was published in English translation by Alfred A. Knopf in 1988.

"The Capsule." Eudora, Kansas, is a real town in Douglas County. The elementary school and the time capsule are fictional. The Kennedy half-dollar was introduced in 1964 following the assassination of President John F. Kennedy. The Cubs won the World Series in 2016.

"The Deed." The Homestead Act of 1862 is real. The land patent format reproduces the actual legal language of patents issued under the Act. Sherman County, Kansas, is a real county in the western part of the state. The Ogallala Aquifer depletion figures cited are consistent with data published by the Kansas Geological Survey.

"The Frequency." The Collins R-390A is a real radio receiver, originally manufactured for the U.S. military in the 1950s and 1960s, and widely regarded as one of the finest communications receivers ever built. Cape Disappointment is a real headland at the mouth of the Columbia River in Washington State. The Chopin Nocturne No. 2 in E-flat major, Op. 9, was composed in 1830-1831.

"The Marker." See the Author's Note regarding the WIPP and the Sandia report. The Permian salt formation's self-sealing properties are real and are one of the primary reasons the WIPP site was selected.

"The Code." *Deinococcus radiodurans* is sometimes called "Conan the Bacterium" for its extreme survivability. The encoding of synthetic data in DNA is an active area of research at multiple institutions. The specific experiment described in the letter is fictional.

"What the Light Carries." Proxima Centauri is the nearest known star to the Sun at approximately 4.24 light-years. The cosmic microwave background radiation was first detected in 1965 by Arno Penzias and Robert Wilson at Bell Labs in Holmdel, New Jersey.

About the Author

David Boles is an author, dramatist, editor, publisher, and teacher. He holds an MFA from the Oscar Hammerstein II Center for Theatre Studies at Columbia University. He is a dues-paying member of the Dramatists Guild, the Authors Guild, and PEN America. He has taught at Columbia, Rutgers, Fordham, NYU, NJIT, and UMDNJ, among other institutions. He founded The United Stage in 1985 and has operated David Boles Books Writing & Publishing since 1975. He lives in New York City with his wife, Janna Sweenie, and their two British Shorthair cats.

His work includes fiction, nonfiction, cultural criticism, dramatic literature, and the Fractional Fiction series, which transforms public domain works through systematic synthesis with contemporary research. He is the host of the Human Meme podcast and the publisher of Boles.com, BolesBooks.com, BolesBlogs.com, PrairieVoice.com, and UnitedStage.com.

He is the author of more than fifty books.

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ASL Linguistics for Practitioners (series) *Arm Angles in American Sign Language Depicting Space Beyond the Hands*

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