

ROYA
PUBLICATION
No. 45

THE DARK COMPANION

CHEW Z

A ROYA PUBLICATION

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Printed in the Reach

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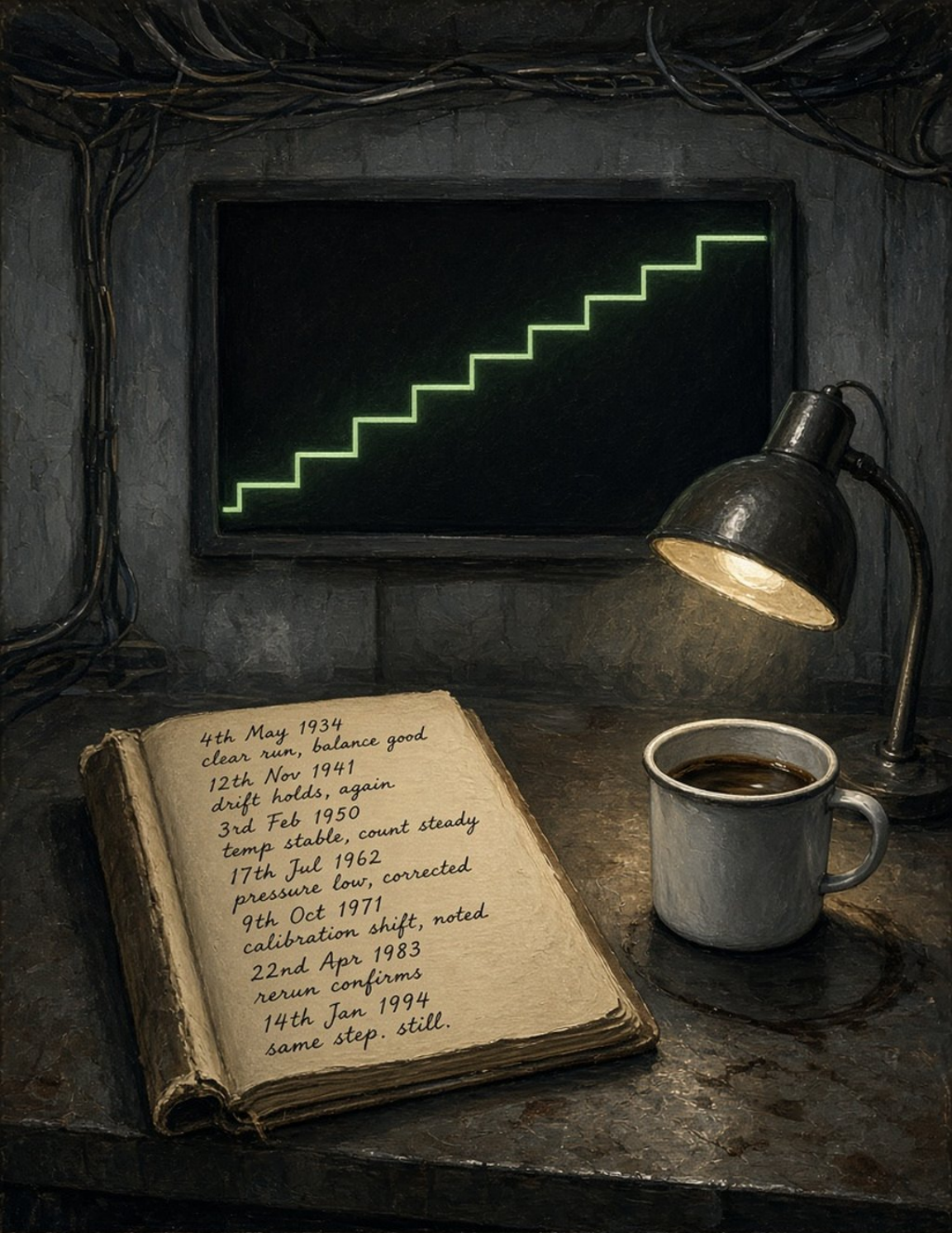
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Book V of the Borrowed Sun Cycle

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4th May 1934
clear run, balance good
12th Nov 1941
drift holds, again
3rd Feb 1950
temp stable, count steady
17th Jul 1962
pressure low, corrected
9th Oct 1971
calibration shift, noted
22nd Apr 1983
rerun confirms
14th Jan 1994
same step. still.

THE STAIRCASE

NINETY YEARS OF NEIGHOR WEIGHT, PLOTTED END TO END — NINE
LEVEL STEPS AND NINE RISERS, WHERE A SMOOTH CURVE WAS EXPECTED.

SYNOPSIS

In 1957, a young physicist proposed that the universe never truly chooses. Every possible outcome happens; the universe simply divides, and you divide with it, unaware, riding one branch among countless others exactly like you. In the world you know, the idea was heard once, gently dismissed, and quietly buried. In this one, it was heard, and believed, and it rebuilt everything.

By 2026, no one grieves alone. Every loss has a counterpart who did not lose, somewhere, on some other branch, and a whole civilization has learned to find comfort in that thought. The physics is settled. The doctrine is gentle. The branches, everyone agrees, are equal, and none of them can ever touch.

Petra Varga weighs the sky for a living, and the sky has been getting heavier, by exact and dateable amounts, for ninety years — heavier than any number of equal, silent, untouching branches could explain. Something out past the edge of the visible has been gaining weight on a schedule. And whatever it is, it is not sharing the load equally.

It is collecting it.

A NOTE FROM THE AUTHOR

In October 1927, in a hotel dining room in Brussels, the finest physicists alive argued for a week about what an atom is when nobody is looking at it, and the argument was won, decisively, by the side that said: don't ask. Thirty years later, a quiet graduate student named Hugh Everett proposed an answer nobody had requested — that the universe never picks at all, that it does everything, all at once, endlessly dividing, and carries you along on every road at once. It should have been the biggest idea of the century. It was heard once, gently set aside, and Everett left physics for the Pentagon and was largely forgotten until after his death, when someone found the old paper in a drawer and thought it deserved better than it got.

This book asks what becomes of a civilization that hears that idea and does not set it aside — that spends sixty years building its medicine, its law, its grief, and its Sunday sermons on top of it instead. I have tried to keep the physics honest and the feeling simple, because the idea itself, stripped down to its bones, is one any ten-year-old already half believes: that somewhere, the choice you didn't make is still being lived by somebody wearing your face. I have included a short glossary at the back of this book for the handful of words this world had to invent to describe its own condition — a device I borrow gladly and gratefully from Frank Herbert, who understood that a reader handed a few strange words, in good faith, will usually rise to meet them.

This is the fifth book of the Borrowed Sun Cycle. Its verse, like the last two, arrives inside the story rather than waiting politely at the end for you — found, this time, folded into the footnotes of physics itself, in a hand the world's finest minds have been citing for ninety years without once being able to say where it came from. Keep it with the first four. The count is five now, and I think, if you have been paying the kind of attention this ledger rewards, you can feel it starting to close.

Chew Z

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ONE. THE WEIGHER

There is a kind of grief that comes with a comfort attached, like a splint taped to a break, and Petra Varga had spent twelve years deciding whether the comfort helped the break heal straight or only helped it heal crooked in a shape nobody was allowed to complain about. That is where I am going to start you, reader, before the observatory and the numbers and the thing in the dark, because a Weigher's whole life is the art of noticing what a comfortable number is hiding, and Petra had been living inside one particular comfortable number since the morning her husband's heart forgot, for four seconds, to send blood to a particular hairline vessel behind his left eye.

Twelve years ago. An aneurysm — a weak place in a blood vessel wall, thin as a worn tire, that either holds or does not, and whether it holds on any given Tuesday is, as far as any doctor in any world can tell you, a coin coming up heads or tails at the smallest scale medicine can measure. Anton Varga's coin came up tails on a Tuesday in March, at his desk, mid-sentence, and by the time Petra reached the hospital the sentence had ended without him.

Here is what her world did for her, and did with real tenderness, and I want you to feel the tenderness before I show you what Petra could never quite let it do. In the branching world — and I am going to explain that phrase properly in the next chapter, so let it sit strange in your ear for one page, the way it sat strange in the ears of everyone alive the year it first got said out loud — grief has a partner concept, and the partner concept is not *acceptance*. It is *accounting*. The doctrine of Petra's world holds, as calmly as your world holds that water runs downhill, that the tiny thin-walled vessel behind Anton Varga's eye did not merely almost hold. It *did* hold — on another branch, an outcome exactly as real as the one Petra was standing in, forking off at the instant of the failure, carrying an Anton who finished his sentence, came home, grew old. Her world does not say *he is gone*. Her world says *he is elsewhere*, and means it as science, not metaphor, and offers you, at the funeral home, a rite called the Parting — a formal, comforting ceremony in which the family stands and reads aloud the

branch-points at which the beloved is understood to persist, so that the room can hold, at once, both the loss in front of them and the uncountable elsewheres in which there was no loss at all.

Petra had stood at her own husband's Parting, in her good dark coat, and listened to the officiant read the branch-points in the gentle cadence her world reserves for exactly this, and had felt — she never told anyone this; she is telling you, reader, because I keep everything, and because this book is the first time she ever let it be told — nothing so simple as comfort. She had felt what a Weigher feels in front of any number that balances too neatly: a small, professional itch, low in the back of the skull, that says *check it again*.

Because here is Petra Varga's whole trade, and I will lay it out for you the plain way, the way she'd lay it out for a schoolchild on a tour, since her world's schoolchildren tour her observatory constantly and she has given the plain version more times than she has given the true one. If every choice truly forks, cleanly, into two equally real branches — the world where the vessel held and the world where it burst, weighted no more one way than the other, the way a coin has no memory of its last flip — then physics predicts something you can actually go out and measure: a gentle, ever-present tug from all those other, unseen branches leaning against our own. Gravity, alone among the four great forces her world's physicists catalogue, is understood to leak a little, branch to branch, the way warmth leaks through a shared wall between row houses. Astronomers a century ago, on your side of this ledger and hers both, noticed that galaxies weigh more than their visible matter can explain — spin faster, hold together tighter, than the stars and gas and dust you can actually see ought to allow. In your world, reader, this extra weight is called dark matter, and remains, to this day, an honest and unsolved mystery. In Petra's world, the mystery was solved in a single generation, cleanly, satisfyingly, and — this is the whole of what her career would come to be about — *wrongly*. The extra weight, her world's physics decided, is simply the gravitational shadow of the neighboring branches: an even, diffuse, comforting haze of other worlds, pressing lightly on this one from every direction at once, proof, written right into the sky,

that the doctrine is true. They gave the haze a name as gentle as everything else in her civilization's vocabulary for loss. They called it Neighbor Weight.

Petra Varga had spent thirty years as a Weigher — the small, licensed profession charged with measuring Neighbor Weight to ever-finer precision, region by region, decade by decade, confirming, confirming, confirming the number that comforted an entire species — at Amity Ridge Observatory, on a windswept height two hours from the city, where the instruments live in a converted mineshaft a kilometer down, shielded from every tremor and stray vibration the surface world could offer, so that the deepest silence available to her species could be brought to bear on the question of how much the universe secretly weighs.

The morning itself she could still walk through in full, the way her trade had taught her to walk through any data set that mattered: from the outside in, checking every boring detail before touching the one that hurt. Anton had been at his desk in the sunroom, marking essays, a cold cup of tea going colder at his elbow, and had said — she would give this sentence to the officiant, to the coroner, to her own mother, and finally, twelve years later, to nobody but a notebook — *"listen to this one, she's actually made an argument,"* and had not finished telling her what the argument was. She had found him with the essay still under his hand, the sentence he'd been about to read aloud sitting unfinished on his lips the way a held door stays open a moment after the hand that held it has already let go. The doctors were kind, and precise, and told her what she already, by then, half-knew from thirty years of measuring exactly this kind of chance for a living: that the vessel behind his eye had likely been thin since birth, that nothing in his diet or his habits or her own vigilance could have thickened it, that whether it held on any given day was, at the scale that mattered, arithmetic without a face attached — a coin, flipped quietly, alone, behind a wall of bone, coming up tails on a Tuesday for no reason any instrument in her observatory could ever be built to detect in advance. She had gone back to work eleven days later, because her mother's patience ran that way and because the alternative, she found, was worse, and because — she would only admit this to

herself, in the notebook, years afterward — measuring things that balance was the only grief she had ever been formally trained to carry.

She was fifty-five. She had her mother's hands and her father's patience and a defect that this whole ledger has by now taught you to recognize on sight, in every world, in every profession, the way you'd recognize a particular gait: she could not leave a discrepancy alone. Her junior colleague, a bright, restless young man named Casimir, who had joined her instrument hall three years prior straight out of certification, liked to say that Petra Varga was the only person he had ever met who could make a rounding error sound like an accusation.

The observatory itself deserves a proper introduction, reader, because Petra Varga's whole working life had been spent inside it and I do not want you to picture some sterile modern box. Amity Ridge is a converted mineshaft, sunk a century ago for iron nobody found in quantity worth the digging, and repurposed forty years later, once the branching doctrine had made the measurement of Neighbor Weight a matter of genuine civic pride, into one of nine great listening halls scattered across her world's continents. A kilometer of solid rock stands between the instrument hall and the ordinary tremor of the surface — footsteps, traffic, weather, the small ceaseless shiver of a species going about its day — so that the one thing the instruments are asked to hear, the whisper-weight of everything unseen leaning on the visible world, can be heard without a single competing sound. The lift down takes four minutes in silence, past sedimentary strata a geologist could read like a book, and Petra had made that four-minute descent, by her own rough count, something over eleven thousand times in thirty years, and had never once, until the year this book takes place, made it without feeling the small settling calm of a woman descending into the one room in her world built entirely around the practice of getting a number exactly right.

On the morning this book begins, in the deep cold hush of the instrument hall, running the ninetieth-anniversary recalibration of Amity Ridge's full historical archive — ninety years of Neighbor

Weight measurements, every decade's instruments cross-checked against every other's, a project assigned to her the way a jubilee is assigned to a Reckoner, as an honor understood by everyone to be ceremonial — Petra Varga found the first number that did not balance.

It should have been static. That is the entire premise of the doctrine, the load-bearing beam of the comfortable house her civilization had built: an even haze, from an even, symmetrical multitude of branches, none privileged over any other, all leaning equally, forever. A haze does not grow. A haze does not have a *shape*.

Petra's ninety-year archive, plotted end to end for the first time in her observatory's history, showed Neighbor Weight increasing. Not smoothly, the way you might expect drift or error to creep in. In steps. Sharp, discrete, dateable steps, decades apart, each one settling afterward into a new and slightly heavier plateau — the graph, on her screen, looking for all the world like a staircase somebody had been climbing, unhurried, one riser at a time, for ninety years, up into the dark.

TWO. THE CHOOSING

To understand what Petra Varga was looking at, you have to stand, for a little while, in a hotel dining room in Brussels in the year 1927 — and I promise you, reader, this is a true story, not an invented one; I am going to tell you exactly what happened, in the world you already live in, before I tell you what happened instead, in hers.

In October of that year, in your own actual history, the finest physicists alive gathered at a conference funded by a Belgian industrialist named Solvay, to argue about a new and deeply strange branch of science called quantum mechanics — the physics of the very small, of atoms and the particles inside them — which had, in the space of a few astonishing years, produced equations that predicted experimental results with perfect accuracy and yet seemed to describe a world with no fixed floor under it at all. At the center of the argument stood two men. Niels Bohr, a Danish physicist of enormous quiet authority, believed that a particle

simply does not have one definite location or state until something measures it; before that, it exists as a haze of *possibilities*, weighted by likelihood, and the act of measurement is what forces the haze to resolve into one plain fact. Albert Einstein, the most famous scientist alive, found this unbearable. “God does not play dice,” he wrote, and spent years constructing brilliant thought experiments meant to break Bohr’s idea open. Bohr, every time, found a way to patch it. By the end of that week in Brussels, and for the thirty years that followed, Bohr’s side had won the room — decisively enough that it became simply *the* interpretation, taught without a competing view to every physics student on Earth, nicknamed, half as a joke and half as an article of professional faith, “shut up and calculate”: don’t ask what is really happening in the haze. Just do the math, check it against the experiment, and get on with your life.

There was a third idea on the table in Brussels that same week, offered by a French aristocrat-physicist named Louis de Broglie, who proposed that particles have a real, definite path through space the entire time — no haze, no vagueness, just a hidden wave quietly steering a perfectly ordinary particle along a perfectly ordinary road. Nobody much liked it. De Broglie himself set it aside within a year, and it would not be picked up again for a quarter of a century.

It is worth sitting a moment longer in that Brussels dining room, reader, before we leave 1927 behind, because the argument that happened there is the seed of everything Petra Varga’s whole civilization would eventually become, and I want you to see the two men clearly rather than as names in a textbook. Bohr was patient, methodical, almost maddeningly careful in conversation, a man who would circle a single sentence for an hour before letting it stand; Einstein was quicker, more playful, a showman of thought experiments who genuinely believed, to the end of his life, that the universe owed its inhabitants a definite answer to every definite question. Contemporary accounts describe them walking together each morning from their hotel to the conference hall, Einstein arriving with some new puzzle meant to break Bohr’s interpretation, Bohr returning the following morning, having slept

on it, with the puzzle quietly dismantled. It was, by every account, a real friendship conducted almost entirely through disagreement, and it never fully resolved — Einstein went to his own grave in 1955 unconvinced, still convinced some deeper, fully determined layer of reality lay beneath the haze Bohr had described, and history, in both your world and hers up to that point, had sided with Bohr regardless of whether he had actually won the philosophical argument. Physics does not require an interpretation to be provably right in order to become orthodoxy. It only requires an interpretation to be *useful enough that nobody bothers to keep arguing*, and Bohr's was.

Now come forward thirty years, to 1957, to a quiet, unassuming graduate student at Princeton named Hugh Everett, and this is the part of the story your world and Petra's world part ways on, and it is a small parting, reader, the way all the partings in this ledger are small — a single conversation going differently, nothing more. In your history, Everett proposed something nobody had quite dared to propose before: that Bohr's haze never resolves into one outcome at all. That every possible result of every measurement *happens*, all of them, all at once — and that the universe does not choose between them so much as it simply divides, cleanly, endlessly, into one branch for every outcome, carrying a version of every observer along on every branch, each one certain, from the inside, that its own branch is the only one that occurred. It was, and is, in your world, a genuinely enormous idea. And in your world, it was heard once by the people who mattered most, found strange and unwelcome, quietly discouraged by Everett's own advisor before it was even fully published, and effectively set aside by the physics establishment of the day. Everett left the field entirely, went to work running probability calculations for the Pentagon, and drank himself, by most accounts, toward an early grave, dying in 1982 largely unrecognized for the idea that would only be dusted off, renamed "many-worlds," and taken seriously years after he was no longer alive to see it.

That is not fiction, reader. I want to be entirely plain with you about that, because this is the one hinge in this whole seven-book ledger where the true history is stranger and sadder than anything I could

invent to replace it. A correct, careful, world-altering idea was heard by the small handful of people equipped to judge it, and was not attacked, not persecuted, not silenced by any force at all — simply set down gently, and left there, because the room was not in the mood.

In the world you are about to spend the rest of this book in, the room was in the mood. The hinge is exactly that small: a different advisor, less anxious for his student's career; a warmer afternoon in Copenhagen when the news reaches Bohr's circle; one letter of polite dismissal that is drafted, and then, for no grand reason at all, never sent. Everett's idea catches instead of dying quietly, and once an idea like that catches, it does not stay a physics department's private curiosity. It becomes, within a decade, a live public argument; within two, a settled and celebrated one; and by 1971, in the years her world calls the Choosing — not one event, understand, but the whole slow decade of public conversion, culminating in a curriculum reform that put branching theory into every schoolroom in the land — it becomes simply what educated people know about the universe, the way you know the earth goes around the sun.

And a civilization builds its whole emotional architecture on top of whatever it believes happens after loss, so a civilization that believes, with the full confidence of settled science, that *nothing is ever really lost* — that the road you didn't take is being walked, right now, by somebody wearing your exact face — rebuilds itself around that comfort with astonishing speed. Grief counseling reorganizes entirely around the Parting, the rite Petra stood through in her good dark coat. An entire minor, semi-embarrassed confessional genre of private thought gets a name — *which branch deserved you* — the quiet, universal, faintly shameful habit of wondering whether the version of yourself who took the other road, said the harder true thing, stayed instead of leaving, turned out better than the one standing here. Insurance exists for branch-related grief, the way it exists for anything a settled, orderly civilization has learned to expect and price. Churches update their liturgies. Physics gets taught in the tone your world reserves for

gravity and evolution: not a theory to weigh critically, but a fact to build a life on top of.

You should have the culture at street level too, the way I have given you every world's streets before this one. Her cities, walked at any ordinary evening, look almost entirely like the cities of a world that never had a Choosing at all — trams, cafes, arguments about rent, children chasing each other down wet pavement — but listen a little longer and the doctrine surfaces everywhere, worn smooth by three generations of daily handling. A common toast at gatherings, spoken half in jest, translates roughly to “to the branches that didn’t.” Wedding vows in the more traditional temples include a clause, softened now into pure ceremony, promising to be worthy of the branch in which the marriage lasts. Children’s books teach the Choosing the way your world’s children’s books teach the water cycle — a friendly diagram of a single trunk dividing into a canopy of golden leaves, each leaf a whole possible life, and a refrain every child in her world can sing before they can properly read: *nothing forks and leaves you less; the branch you’re on is still a yes*. Her world’s therapists, unlike the therapists of every other book in this ledger, do not treat “which branch deserved you” as pathology; they treat it as a normal, universal, slightly melancholy hobby, the way your world’s therapists treat rumination about the past, and entire self-help sections in her bookshops are devoted to gentle techniques for enjoying the thought rather than drowning in it. It is, on the whole, and I want to be fair to it before this book takes it apart, a remarkably kind civilization to live in — kinder, in some visible ways, than the world you are reading this in, because it has told itself, for three generations, that nothing is ever truly wasted, and has built its manners accordingly.

And underneath the whole gentle architecture sits one specific, load-bearing article of faith, repeated in every schoolroom, every insurance pamphlet, every Parting: that the branches are a democracy. Equal. Symmetrical. None of them privileged, none of them in contact beyond that faint, comforting, evenly-distributed gravitational hum her world calls Neighbor Weight — a hum that, by 2026, ninety years of careful measurement had confirmed again and again and again, right up until the ninetieth-anniversary

morning a tired, thorough, grieving Weigher named Petra Varga plotted the whole archive end to end and found a staircase where the doctrine had promised her a haze.

THREE. THE STEPS

Casimir found her still at the screen four hours later, the recalibration long finished by every clock in the building except the one in Petra's own skull, and he did the thing junior colleagues do in every entry of this ledger, reader — you have watched a Dahl do it, and a Kavus, and you are about to watch a Casimir do it, because the road, I am increasingly convinced, hires the same handful of souls again and again across every version of itself — he approached with his tablet held slightly away from his body, the way you carry a sample you suspect of being bad.

"Weigher Varga. I reran your plot. I thought I'd broken something."

"You didn't break anything," Petra said, not looking up. "That's the trouble."

He came around to see her screen, and stood a long moment looking at the staircase, and said the sentence that every junior in this ledger eventually says, in one wording or another, the sentence that separates a technician from whatever Petra Varga was about to become: "Neighbor Weight is supposed to be a constant. A haze doesn't have *steps*."

"No," said Petra. "It doesn't."

She walked him through it the way she would later be asked to walk through it before a panel of considerably less patient men, because teaching a discovery to one honest junior colleague is good practice for defending it to a room that does not want to hear it. Nine risers on the staircase across ninety years of data. Each one a real, measurable jump in the total gravitational mass of the observable region — not error, not drift, not an instrument aging out of calibration, because she had cross-checked every riser against three independent generations of equipment, mechanical, electronic, and now the fully automated array installed the decade before, and all three told the identical story in their own

instruments' own languages. Something out past the edge of the directly visible had gained real, significant weight, nine separate times, at nine specific moments, over the ninety years her observatory had been watching.

"Coincidence," Casimir tried, because it is always tried first, in every world, by every decent junior colleague standing at the mouth of this particular cave. "Measurement artifacts stacking up over ninety years of changing methodology—"

"I thought that for about an hour," Petra said. "Then I dated the risers properly. Down to the month, where the data allows it." She turned the screen toward him fully. "Look at the spacing, Casimir. Tell me what a random process looks like, and then tell me if this is it."

It was not. Even to a junior three years into his license, the pattern had a rhythm no honest noise would produce — the intervals between risers were not even, but they were not random either; they clustered, unmistakably, around specific windows of years, the way, Petra thought privately, a thing accrues when it is being *fed* rather than simply happening. She did not have the words for that yet, reader. She had only the shape of the pattern, and the shape of the pattern was enough to put the splinter fully under the nail, where it would stay for the rest of this book.

She spent the following weeks doing what her whole trade exists to do: she checked the boring things. Instrument logs. Calibration certificates. Staffing rosters for the years of each jump, in case some forgotten renovation or nearby construction project could account for a riser — and found, at riser six, twenty-two years back, a maintenance note so ordinary she nearly filed past it without a second look: a full week's data flagged and quarantined, at the observatory's own auxiliary listening post, attributed at the time to "unexplained transient interference, source unresolved," the readings never fully reconciled, the note simply closed out and forgotten, the way ten thousand small unremarkable anomalies get closed out and forgotten in any working archive every year.

Petra Varga requisitioned the quarantined week's raw data, un-reconciled for twenty-two years, and sat with it alone in the

instrument hall past the end of her shift, the mineshaft's kilometer of rock holding the whole world's noise at bay above her, and began, for the first time in her disciplined, grieving, comfortably doctrinal life, to read a page of her own archive the way her trade had always claimed to read everything and had never once, in ninety years, actually needed to.

What she found, deep in the quarantined week's raw output, was not itself the answer — the answer was still months off — but it was the first thing in this whole account that made the hair go up on Petra Varga's arms, because instruments do not, as a rule, produce language. Buried in the auxiliary post's diagnostic log, in a data field meant only for terse machine-generated error codes, twenty-two years of software updates had apparently never once thought to clear or overwrite a stray string entered, according to the timestamp, in the same minute the "unresolved interference" was first flagged — six words, sitting in a field built to hold sixteen characters of hexadecimal, that no engineer on record had ever queried and no maintenance log had ever mentioned. Petra copied them into her own notebook, under the date, in a hand that was for once not entirely steady:

The branch was lent; the cost was owed —

She stared at the line for a long time in the cold hush of the instrument hall, and did what her whole trade had trained her to do with anything that did not belong: she filed it, dated it, and did not yet understand it, and went back to checking the boring things, because a Weigher who chases a single strange line before she has finished the arithmetic is not a Weigher her College would ever trust with a second finding.

As if the number might be trying to tell her something.

FOUR. THE DRAINAGE

What was buried in the quarantined week's raw data was not, at first, an answer. It was a second, worse question, and I want you to feel the exact shape of Petra's dread when she found it, because it is the dread of every careful person in this ledger discovering that

the thing they checked wasn't broken in the small way they hoped, but in the large way they feared.

The doctrine's whole comfort rests on symmetry. If the branches truly lean on one another equally, from every direction, the Neighbor Weight an instrument measures should arrive from *everywhere at once* — a haze has no address. Amity Ridge's instruments, like every gravitational observatory in her world, are built and calibrated on that assumption; they measure total pull, not direction, because doctrine says direction is meaningless for something with no single source. Nobody in ninety years had seriously asked the instruments to try.

Petra asked them to try. It took her three weeks of quiet, off-the-books recalibration, done in Casimir's company because she had decided by then, with the flat certainty of a woman done grieving alone, that she would rather have one honest witness than none, and because — this she did tell him, once, late, over the cold coffee that is this trade's communion wine in every world of this ledger — "if I'm wrong, I want someone kind enough to tell me before the College does." She adapted the array to triangulate, the way you'd repurpose a hearing aid to locate, rather than merely amplify, a sound. And the haze, coaxed for the first time in ninety years to say *from where*, answered.

It was not even. It was not symmetrical. Across every one of the nine historical risers, and in the live signal now arriving daily, the pull leaned — faintly at first, and then, once she knew to look, unmistakably — toward a single patch of sky, a modest, unremarkable stretch of stars in a constellation with no myth attached to it in her world's astronomy, no bright object, no known mass of any kind on record. Not a haze pressing from everywhere. A tide, running one direction, toward one place.

"Doctrine says gravity leaks evenly branch to branch," Casimir said, staring at the vector plot the way you'd stare at a door that had just definitely, unmistakably, knocked back. "This says it's *draining*. Toward one point." He looked at her. "Weigher Varga. What drains toward a democracy?"

"Nothing," said Petra. "Democracies don't have plumbing."

The three weeks themselves were the strangest of Petra's career, and I want to give you their texture before the finding, because a discovery like the Drainage does not arrive in one clean motion; it arrives the way water arrives under a door, a little at a time, each night's new increment small enough to doubt and large enough, cumulatively, to keep a woman from sleeping. She and Casimir worked the auxiliary array after the day shift left, the two of them alone in the mineshaft's hush with the kind of silence that makes every keystroke sound like a confession, adapting instruments that had spent ninety years answering one question — *how much?* — to answer, for the first time, a question they had never been asked to consider: *from where?* Casimir, to his credit, never once suggested they stop, though Petra watched him age visibly across those three weeks the way junior colleagues in every world of this ledger seem to age when the columns they've been trained to trust begin, gently and irreversibly, to fail to close.

She named the finding, in her own private notes, before she ever dared name it to a colleague outside her own instrument hall, with the plain, unpretty word her trade favors for anything moving with intent through a system that isn't supposed to have intent at all: the Drainage. And she did what a Weigher does with a finding too large to trust alone — she went looking for anyone else who had ever seen this water moving and been told, gently, to look away.

She found three. A retired Weigher two observatories over, whose own directional recalibration, forty years prior, had been quietly rejected by her College's review board with the phrase — Petra would come to know it nearly by heart — "insufficiently distinguished from instrument bias," and who had left the field the following year and never published again. A cosmologist at the capital's university whose entire minor, unfashionable specialty was what her discipline called "asymmetry heresies" — small, stubborn anomalies in the doctrine's math that never quite closed, filed for decades under the professional equivalent of a shrug. And, oldest of the three, a paper from 1961, ten years into the Choosing's triumph, by a junior researcher who had proposed, in careful, apologetic language, that if branching gravity leaked at all, symmetry was not actually *required* by the founding mathematics

— that it had simply been *assumed*, for comfort, and never rigorously shown — and who had been persuaded, by two senior colleagues whose names appear nowhere on the paper’s rejection letter, to withdraw the submission before it ever reached print. Petra tracked down his current address — a modest flat two provinces over, a man in his eighties now, still teaching a single evening class at a community college that had no idea what he had once nearly discovered — and made the drive herself, unannounced, on a Sunday, because some findings, she had decided, deserved to be delivered in person rather than by letter. He listened to her account of the Drainage in complete silence, sitting very still in a kitchen that smelled of old books and older tea, and when she finished, he did not say *I told them so*, which she had half-expected and almost hoped for. He said, instead, very quietly, looking at his own hands: “I have spent sixty years being grateful they let me keep my position instead of my finding. I would like it on the record, Weigher Varga, before I die, that I would make the opposite trade now.” He gave her his original working notes, yellowed and precise, and asked for nothing in return except that his name appear, somewhere, in whatever she eventually published — not as a footnote to her discovery, but as a witness to how long it had been waiting to be made.

Petra read that letter of withdrawal — preserved, as such things always are somewhere, in a university archive nobody had opened in decades — three times, and felt the whole shape of her civilization’s greatest comfort go thin under her hands like old ice, and thought, for the first time since her husband’s Parting, of the officiant’s gentle, confident voice reading branch-points into a room full of grieving people who had been told, and had every reason in settled physics to believe, that the ledger of the universe balanced perfectly, for everyone, forever.

FIVE. THE UNSOURCED SECTION

Every settled science has a founding scripture, and Petra Varga, chasing the Drainage back to its root, went at last to hers: the 1958 paper, canonized in every physics curriculum since the Choosing, in which the branching interpretation first found its full and rigorous

voice — not, in this world, quietly discouraged and buried, but championed, refined, and published to lasting acclaim, its author remembered here the way your world remembers the physicists whose ideas *did* survive the room.

The paper runs to forty careful pages of mathematics, and Petra had read it, as every physics student in her world reads it, at nineteen, without once questioning its shape. What she had never done — what almost no one, in ninety years, appears to have done — was ask about its final section: four pages, appended after the proof is already complete, titled “On the Conservation of the Sum,” which every printing since the very first has carried, which every commentary cites as a minor, poetic, faintly mystical coda the author was permitted as a kind of victory lap, and which — Petra discovered this over four long nights in the university archive, with the help of an elderly, dry, endlessly patient archivist named Halvard, who had kept that archive’s older papers for thirty-one years and had never once, he told her, been asked to actually verify one — appears in no surviving draft. Not the first submission. Not the referee’s marked copy. Not the author’s own working notes, preserved in full by a devoted university collection. The section exists, complete, formally typeset, in the very first published printing — and nowhere before it.

Halvard himself deserves a fuller introduction than the four nights allowed him at first, because he became, before this book was finished, nearly as important to Petra’s finding as her own instruments. He had kept the university’s physical science archive for thirty-one years, ever since a hearing injury from his national service years had ended an earlier, more active career, and he had brought to the work of shelving and cataloguing the same patient, unglamorous exactness Petra brought to weighing the sky — a kinship the two of them recognized in each other within the first hour and never afterward needed to discuss directly. He worked, he told her once, entirely alone in a basement three floors beneath the physics department’s public reading rooms, and had grown, over three decades, into the particular fondness a careful person develops for an archive nobody else has ever properly read: proprietary, a little lonely, entirely devoted.

"Thirty-one years," Halvard said, on the fourth night, setting the last folder down with the particular care of a man closing a drawer he has been waiting three decades for someone else to open, "and you are the first person who has ever asked to see the *drafts* of the Sum section instead of just citing it." He looked at her over his glasses. "The law students who come through here ask where a statute's language came from. The historians ask where a general's order came from. Nobody, in thirty-one years, has ever asked where four pages of a physics paper came from. I used to think that meant it didn't matter." He did not finish the sentence, and did not need to.

The section itself, read as prose rather than skimmed as scripture, is strange in a way Petra had simply never let herself notice: it drops, without any mathematical transition, into a looser, more rhythmic register, its sentences falling into a cadence that a careful ear — and hers, by the fourth night, had become very careful indeed — can read as verse, if you let it. Buried in its second page, in language every commentary for ninety years has treated as a charming metaphor and nothing more, Petra found two lines she copied into her own notebook with a hand that was not, she would later admit only to Casimir, entirely steady:

Each door unopened still stood true somewhere, and someone lived it through,

And on the fourth page, in the section's closing passage, where the mathematics resolves into what every textbook calls "the author's characteristic lyricism":

and every someone, thin as light, was weighed, and drawn from sight to sight,

"It scans," Halvard said quietly, when she read them aloud to him, the two of them alone in the archive's cold fluorescent hush. "I never noticed that it scans." He took off his glasses and cleaned them, which Petra had by then learned was the thing he did instead of admitting he was unsettled. "Weigher Varga. In thirty-one years I have catalogued exactly one other document in this collection that arrived complete, with no traceable draft, in a hand nobody could account for." He did not offer to show her that one yet. He would,

before this book is over, and it will not surprise you, reader, to learn where it was filed.

INTERLUDE. THE PARTING SEASON

Before the confirmation, before the gallery night, before the number that would end her comfortable career and open whatever came after it, walk the ordinary world with me for a little while, the way I have walked you through a hospital corridor and a certificate line and a festival hill in the four books before this one — because this is the world with its hand still on the doorknob, and you should have it whole before the door opens.

Autumn, in Petra's country, is Parting season — not by law, the way certificate renewal is scheduled by law on the other side of a very different river in a very different book, but by simple accumulated habit: the season of long dusks and gathering cold has become, over three generations, the season families choose to hold the rite for losses that happened at any point in the year, a kind of civic Sunday for grief, and the funeral parlors of every city run at full capacity from the first frost to the first snow. Petra had watched, this particular autumn, with the new and terrible clarity of a woman who had just spent a month proving the numbers wrong, three separate Partings in her own apartment block — an elderly neighbor's husband, a young couple's stillborn, a teenager's best friend, gone in the ordinary sudden ways a species loses its people in every world of this ledger — and had stood in the shared courtyard each time, in her good dark coat, listening to three different officiants read three different lists of branch-points in the same gentle, trained, comforting cadence her husband's officiant had used twelve years before, and had thought, each time, with a coldness that frightened her: *you are telling them a symmetry I can no longer find in the sky.*

The rite itself deserves its full accounting, because it is the tenderest machine in this book and I do not want you to mistake it for cruelty before you understand what it actually offers. The family gathers, and an officiant — trained, licensed, gentle by trade the way a Tender or a Transcriptionist is gentle by trade — reads

aloud, from a formally prepared branch-inventory assembled in the days after the death, every documented point at which the deceased's fate might plausibly have forked: the surgery that might have been scheduled a day earlier; the road that might have been taken instead; the sentence, in Anton Varga's case, that might have been finished before the small thin vessel behind his eye gave way. For each one, the officiant states, in the formula every child in her world can recite by the age of six, *and there, they are living still* — not as wishful thinking, understand, but as a citation, a fact drawn from settled physics, footnoted in the family's own private grief the way a scientist footnotes a source. It is, Petra thought that autumn, standing in three different courtyards in three days, the single most humane lie a civilization has ever told itself with a straight face — and she used the word *lie* in her own private notebook for the first time that season, and crossed it out, and wrote it again, because a Weigher does not get to flinch from her own data.

And beneath the tenderness, all season, in every apartment block and every certificate-free street in her whole undivided country, ran the quieter, more private ritual her world had built alongside the public one: the confessional habit so universal it has its own worn phrase, spoken half-joking at dinner parties and fully in earnest at three in the morning — *which branch deserved you*. The husband who wonders, lying awake, whether the version of himself who took the promotion, or didn't; who spoke the hard true thing to his father, or swallowed it; who left the party ten minutes earlier, or later, is living something better than the life he is currently, undeniably, having. It is not despair, exactly, this habit — her world's counselors are at pains, in every pamphlet, to say so — but it is not far from it either, and Petra, walking home from the third Parting of that week past the lit windows of her own ordinary street, understood for the first time in twelve years exactly what the doctrine had actually been asking its whole population to carry, quietly, alone, every night: the specific, unspoken loneliness of believing yourself to be only one of infinitely many, and never once, not for a single measurable moment, being permitted to compare notes.

There was one more scene of that season Petra did not enter into any notebook until much later, and I will enter it here, because I keep everything and because it belongs. At the second Parting — the young couple's stillborn, the hardest of the three, the officiant's gentle list of branch-points including, as it always must for a loss of that particular kind, the branch on which the smallest and most ordinary complications of the pregnancy simply had not occurred — Petra had stood at the back of the courtyard, a stranger to the family, invited only because her apartment block considered attendance a neighborly duty, and had caught herself doing the thing her whole disciplined life had trained her never to do at someone else's grief: running the numbers. Not out of coldness. Out of the same reflex that made her check a calibration twice before signing it. She had stood in the cold, listening to the officiant's trained, tender voice, and had thought, with the specific vertigo of a woman watching her own profession's authority extend somewhere it had never been tested: *we have never once measured whether this comfort is load-bearing, or whether it simply feels load-bearing because no one has ever pushed on it.* She had said nothing. She had gone home. But the thought had lodged, the way the splinter always lodges in this ledger's people, and by the time the third Parting came, three days later, she was no longer merely grieving her own twelve-year-old loss. She was auditing her civilization's oldest and gentlest transaction, and finding, for the first time, that she did not know how to stop.

She went home, and did not sleep, and took out her own private notebook, and beneath the two copied lines from the Sum, in her own hand, wrote the question that would carry her through the rest of this book: *If the branches cannot touch, then who has been reading our physics back to us in verse?*

SIX. THE DARK COMPANION

Confirmation, when it came, took Petra Varga four more months, the full resources of Amity Ridge Observatory borrowed and begged a shift at a time, and the quiet, unbudgeted complicity of an aging archivist and one loyal junior colleague who had, by then, stopped calling her theory a theory even in his own head.

The four months themselves cost Petra more than she let Casimir or Director Snow see at the time. She missed her sister's birthday dinner twice. She let a friendship of fifteen years go quiet because she could not explain, without sounding either mad or treasonous, why she had suddenly stopped attending the Sunday branch-discussion circle the two of them had kept since university. She dreamed, more than once that autumn, of Anton finishing his sentence — an ordinary dream, the kind any widow might have, except that in every version she found herself unable to hear what the finished argument actually was, the sentence completing itself just past the edge of what her sleeping mind was willing to let her keep, and she woke each time with the specific, unbearable frustration of a Weigher who has watched a number resolve one decimal place short of significance.

The method, once she had the nerve to attempt it, was almost embarrassingly simple, the way the largest findings in this ledger always turn out to be embarrassingly simple once somebody finally asks the plain question. If the Drainage ran toward a single point rather than arriving from everywhere, then that point could, in principle, be triangulated the same way astronomers in her world and yours have always found things they cannot directly see — by watching how everything nearby leans. A planet with no visible companion, wobbling on its orbit as though something unseen were tugging at it. A galaxy spinning faster than its lit-up stars can account for. The whole discipline of dark companions, in her world's astronomy as in yours, is the discipline of reading absence by its manners: you cannot see the thing, but you can watch how everything around it flinches.

Petra pointed that discipline, for the first time in her observatory's history, not outward at the stars but inward at ninety years of her own institution's accumulated flinching, cross-referenced against three other observatories' independent archives, which she obtained through channels Casimir still will not describe to review boards. The triangulation converged, across four separate data sets gathered by four separate institutions with four separate methodologies, on a single location, a single unlit patch of ordinary sky, and a single figure for its mass — a figure large enough, by

then, that it could no longer be dismissed as measurement noise by anyone honest enough to sit through the full presentation, and growing, still, in the same discrete, dateable steps the ninety-year archive had first shown her, the most recent riser having occurred, she would only permit herself to note in the driest possible language of her draft paper, “within the eighteen months prior to submission” — though she knew, privately, checking her own observatory’s log against the date, that the riser had occurred to the week during which a certain reading had taken place on a certain set of marble steps in a country she had never visited and would have had no reason, before that week, to imagine at all.

She called it, in the paper that would end her comfortable career and open whatever came after it, by the plainest name her discipline had ever had for exactly this kind of finding: the Dark Companion. Not a haze. Not a democracy of equal, silent branches leaning evenly from every direction. One body. Unlit. Massive, and growing, on what her paper’s careful, hedged language called “an orbit of undetermined but apparently very long period” — and every reviewer who read the draft understood, whether or not the paper’s language permitted them to say so in a journal of record, that what Petra Varga was actually proposing was the single most doctrinally dangerous sentence her civilization’s physics had produced since the Choosing itself: that somewhere out past the edge of the visible, one specific place has been quietly and unequally collecting what an entire species was taught to believe was distributed, gently, fairly, to everyone at once.

Director Marguerite Snow, who had run Amity Ridge for eleven years with the calm, competent, entirely sincere stewardship this ledger has taught you to recognize in every world’s version of her — an Okafor, an Ardeshir, a Pruitt, always kind, always institutional, always, in the end, more afraid of the door than curious about what stood behind it — called Petra into her office the week the draft circulated, and did not shout, because her kind never shouts, and said, gently, holding the pages the way you’d hold something that might still, if handled correctly, be put safely back: “Petra. I have read this three times. I want you to understand that I believe your numbers.” She set the pages down. “I also want

you to understand what happens to an observatory, and to a Weigher, and to ninety years of settled comfort for people who have already buried enough, if this is published exactly as written." She looked at Petra with real, unfeigned kindness, the kind that makes an institution's caution so much harder to refuse than its cruelty would have been. "Is there a version of this finding, Petra, that doesn't ask an entire species to reopen every Parting it has ever held?"

Petra thought of three courtyards in one autumn week, and an officiant's gentle trained voice, and her own dark coat, and a splinter that had been under her nail for twelve years before it ever had a number attached to it, and said the only thing her whole trade had ever actually equipped her to say: "No, Director. There is only the version that's true."

Director Snow held her gaze a long moment, and Petra watched something settle in the older woman's face that was not quite defeat and not quite relief — the particular expression, this ledger has taught you by now, of an institutional steward realizing that the door she has spent a career guarding is going to open regardless of what she personally decides to do about it, and that the only remaining choice left to her is whether she opens it herself or is found, later, to have been standing in front of it. "Then I will endorse it," Director Snow said, quietly, and stood, and extended her hand in the formal manner her observatory reserved for exactly this kind of moment. "Not because I am no longer afraid of what it costs, Petra. Because thirty years ago, before I ran anything, I took an oath that had a sentence in it about following the data wherever the data insisted on going, and I find, rather to my own surprise this afternoon, that I still mean it." She managed something almost like a smile. "Ninety years is a long time for an institution to avoid finding out whether it actually believes its own oath."

SEVEN. VISITING HOURS

Amity Ridge holds a public gallery night twice a year, in spring and autumn, a tradition older than the observatory's current instruments, in which the mineshaft's upper levels open to

schoolchildren, retirees, and the ordinary curious public, who file through in coats and mufflers to look at models of the great branching tree and hear a docent explain, in the same plain tour-language Petra had given a hundred times before this book began, how a Weigher spends a career confirming that the universe is fair. The autumn gallery night fell three weeks after Director Snow's office, in the strange suspended interval between a dangerous paper submitted and a dangerous paper reviewed, and Petra worked the visitor floor herself that evening, out of a stubbornness she could not fully explain even to Casimir, who worked beside her and watched her more closely than either of them admitted at the time.

Petra had worked a hundred gallery nights before this one, and could have described the ordinary texture of them in her sleep: the schoolchildren pressing their palms flat against the observation glass as though trying to feel the mineshaft's kilometer of silence through their fingertips; the retirees asking, every single time, some version of the same question — *does it ever scare you, Weigher, all that weight you can't see* — to which she had, for thirty years, given the same rehearsed and entirely sincere answer, that no, it did not scare her, because a haze that leans on you evenly from every direction is, properly understood, the gentlest kind of weight there is. She had given that answer perhaps four hundred times in her career. She would never give it again after that autumn, and standing on the gallery floor that evening, three weeks into a suspended verdict on the most dangerous paper of her life, she found she could no longer quite make her mouth form it, and had begun, without deciding to, answering the children's version of the same question with something closer to the truth: *I used to think not. I'm not so sure anymore.*

He came in with the seven o'clock crowd, tall past the coat-racks, in a garment from no tailor the gallery's usual visitors would recognize, the bag at his shoulder mended in strata like the rings of a very old, very carried tree, and Petra knew him before she knew she knew him — the whole gallery floor, she would say afterward, in the one interview she ever gave about that evening, "went quiet at a different frequency," the visitors around him drifting into the

particular hush a congregation keeps, without deciding to, around something it recognizes as larger than the room.

He crossed to the great suspended model of the branching tree — a sculptural thing, decades old, meant to show schoolchildren how one trunk of possibility divides and divides again into a canopy too vast to render fully, the observatory's proudest piece of public teaching — and stood before it for a long while with the stillness of a man reading a document he had personally filed. Then he turned to the nearest instrument bench, where the automated array's live output ran on a public display for the visitors' benefit, ordinarily showing nothing more dramatic than a gently fluctuating baseline. Petra was eleven feet away, close enough to hear it, when the display, for a span of exactly forty seconds, logged a transient mass excess large enough to trip three separate alarms — an event that would be argued over by her successors for the better part of a century, attributed variously to instrument malfunction, visitor-floor electromagnetic interference, and, by the small stubborn minority who eventually gained access to the full raw log, to something the log itself, in the terse language of an automated system doing its honest best, tagged in its incident field as: UNIDENTIFIED MASS, TRANSIENT, APPROX. 40s. CONTENTS UNKNOWN. LOGGED AS: BAG, PERSONAL (1).

Petra crossed to him before the alarm had finished its cycle, and he turned to her unhurried, the way a man turns who has been expecting the room's one honest reader to arrive, and she asked him, because her whole trade had prepared her for exactly one question and she was not going to waste the visit on any other: "What am I about to publish?"

"The truth," he said, in a voice that reached her from further away than the mineshaft's walls allowed. "Late, the way it always arrives. On schedule, the way it never feels."

"The steps in my data. They're not random."

"No." He looked past her, briefly, at the branching tree turning slowly on its cables, canopy without end. "Your world believed the ledger balanced itself, evenly, for everyone, forever, and needed no keeper. That belief was kind, Weigher Varga, and it was wrong the

way kindness is sometimes wrong — not from malice, only from an unwillingness to check the boring numbers.” He shifted the bag on his shoulder, and Petra, watching, understood with a Weigher’s flat physical certainty, the same certainty with which she read an instrument, that whatever the bag weighed, it weighed considerably more than canvas and its contents ought to. “Someone has always kept the difference. That is the whole of the trade, in every world that has one.” He held her gaze a moment longer than courtesy required. “You have found where the difference is kept. Publish it as what it is, and not as what your director wishes it to be, and I promise you an audience prepared to receive it, though not the one your College will send.”

“Who are you?”

He was already turning, unhurried, toward the gallery’s east stair, the crowd parting around him the way a congregation parts, without deciding to, for an usher who knows the aisle better than they do. “A colleague,” he said, “in a very old trade,” and at the head of the stair, without turning back, in a voice pitched, she would swear afterward to Casimir and no one else, exactly to carry the length of the hall and no farther: “Weigher. When you write the final section — and you will write one; every honest paper of this kind ends up needing one — do not call the extra weight a haze.” He paused at the landing. “Call it a debt. Your instruments have been measuring interest for ninety years.”

By the time Petra reached the stairhead herself, he was gone, and the gallery’s exit log, checked twice by Casimir and once, disbelieving, by Director Snow herself, showed no visitor departing by that door in the preceding hour.

EIGHT. THE SUM

Petra Varga did not sleep the night of the gallery, and by the turning of what her world still calls, out of old habit, the small hours — though small hours mean something gentler in a country that has never built a certificate system to police them — she was back in the instrument hall with Casimir and, by the second hour, a reluctantly summoned Halvard, doing the only thing her trade had

ever actually equipped her to do with a stranger's parting instruction: checking it against the numbers.

Call it a debt. Your instruments have been measuring interest for ninety years.

Interest, she thought, sitting with the nine risers laid out once more before her, is not a haze. Interest is not even, patient, symmetrical accrual on a fixed principal. Interest *compounds* — grows against its own growing base, faster with each cycle than the cycle before, the increments widening even when the underlying rate holds perfectly steady. She ran the risers again, this time not as nine flat steps but as a compounding series, and the fit, when it came, came so cleanly that Casimir, watching the residuals collapse toward zero on his own screen, said nothing at all for a long moment, which from Casimir was its own kind of alarm.

"It's not being fed at random," he said finally. "It's not even being fed on a fixed schedule. It's being fed the way a bank is fed, Weigher Varga. Each deposit sized to what's already on account."

Petra sat with that, and thought of Casimir's own earlier question, three months and a lifetime ago — *what drains toward a democracy?* — and understood, with the particular coldness of an answer arriving exactly the size of the question that summoned it, that the branches her civilization had spent ninety years insisting were equal, silent, and incapable of touching one another were not, in fact, a democracy at all, any more than a household is a democracy simply because every room shares the same roof. Somewhere among them — not all of them, not evenly, not fairly — certain crossings were being made. Certain doors were not merely unopened, the way the Sum's own borrowed verse had it, but *opened by someone else*, on someone's behalf, and whatever was found on the other side was being carried out, weighed, and banked.

It was Halvard, at the fourth hour, cross-legged on the instrument hall's cold floor with a folder Petra had never seen before, who supplied the reconciliation's final piece, and did it the way an old archivist supplies everything: quietly, and as though he had been waiting a very long time for someone patient enough to deserve it.

"You asked me, months ago, whether I had ever catalogued another document that arrived complete, with no traceable draft, in a hand nobody could account for." He set the folder on the floor between them, and opened it to a single page, fine-grained, the color of old bone, that the university archive's own accession records dated to 1958 — the same year as the Sum's first printing — filed, he said, under an acquisitions category so obscure it had never once, in thirty-one years, been pulled for any purpose at all: *unsolicited correspondence, source unknown, retained per standing instruction*. On the page, in a patient, careful, faintly old-fashioned hand, ruled and entered like any line of any account:

for nothing forks and stays unweighed; the sum of every choice is stayed

in one dark scale that draws it in, patient, and hungry, and akin

"Standing instruction," Petra said. "Whose?"

Halvard turned the folder's final leaf, where the accession slip carried, beneath the shelving code, a single line in the same careful clerk's hand that had logged the item in 1958, and had apparently been renewed, unquestioned, by every archivist since: *Retain uncatalogued and unread until claimed by a Weigher acting on a finding of directional mass*. He looked up at her over his glasses, and for the only time in this whole account, the dry old man's composure went, briefly, entirely. "Sixty-eight years, Weigher Varga. This archive has been holding a shelf for you since before your mother was born."

Petra sat on the cold floor of the instrument hall with the folder in her lap and did the arithmetic her trade had trained into her marrow, the arithmetic every patient professional in this whole ledger eventually does at the bottom of their own particular vault: nine risers, ninety years, compounding, sized each time to what had already accrued — and understood, with the flat, dry, terrible clarity of a column closing, that she was not looking at the residue of some abstract cosmic bookkeeping. She was looking at a *route*. A single, patient, long-orbiting collector, moving between worlds that her own physics had correctly discovered could fork but had wrongly assumed could never touch, gathering, from each one,

whatever that world's particular unpaid account amounted to — an ember, in one place; a season of testimony, in another; the exact shape of loss Petra herself could not name yet, because it was not her world's shape to carry — and banking the weight of all of it, patiently, on interest, in one unlit place her own instruments had finally, honestly, after ninety years of averting their eyes, been forced to see.

"The dark companion," she said aloud, to Casimir, to Halvard, to the cold hall, to the folder in her lap, "isn't debris. It isn't a haze that happened to clump." She closed the folder gently, the way you close a ledger you have finally been permitted to finish reading.

And beneath the two couplets Halvard's folder had held for sixty-eight years, on the same fine-grained page, in a lower margin the accession record had apparently never thought worth transcribing, Petra found one more pair of lines, and read them aloud into the cold hall for Casimir and Halvard both to hear, because by that hour of the morning she had stopped believing any finding of this book's belonged to her alone:

to every world this road has crossed — what you thought free was never lost.

Casimir, who had said very little in the preceding hour, said, quietly, into the silence that followed: "Every world, Weigher Varga. Not ours. *Every* world." He looked at the folder, and then at her, with the particular expression this ledger has shown you on every junior colleague who finally understands the size of the road their teacher has found the edge of. "How many others are there?"

Petra did not answer him that morning, because she did not yet know, and because a Weigher does not publish a number she cannot defend — but she wrote the question in her own notebook beside the couplet, in the same plain hand she had used for ninety years of honest archive, and it would be there still, unresolved and carefully dated, the day her paper finally went to print. "It's a *bag*. And it has been getting heavier for exactly as long as somebody has been walking with it."

NINE. EQUILIBRIUM

She published six weeks later, against Director Snow's careful, kind, entirely sincere advice, in language that made no concession at all to the comfort her civilization had spent ninety years building on the doctrine she was now formally retiring: not a haze, but a companion; not a democracy of branches, but a watershed, with a single low point toward which certain unequal, unrandom, and apparently intentional transfers of weight had been flowing for at least as long as her instruments had existed to measure them, and — she allowed herself, in the paper's final section, the only indulgence her whole career had ever permitted her — very probably for a great deal longer than that.

The publication itself, when it finally happened, arrived on an ordinary Thursday with none of the ceremony Petra had privately imagined for it across four difficult months — no assembled crowd, no marble steps, no crowd holding its breath in unison the way this ledger has shown you elsewhere. It arrived the way most true and difficult things arrive in a settled, orderly, undramatic civilization: as a journal notification, a handful of interview requests, a flurry of departmental emails, and one very long night during which her observatory's public phone line did not stop ringing. The doctrine's defenders — and there were many, and they were not villains, reader, I want to be plain about that; they were parents and officiants and grief counselors and ordinary frightened people who had built twelve years or forty years of genuine peace on top of an arithmetic Petra had just publicly retired — did not riot on any steps. They wrote careful, wounded letters to her department. They organized, within the month, a symposium titled, without apparent irony, "Reaffirming the Symmetry," which Petra attended, and sat through with the same patient stillness she brought to every number that did not yet balance, and did not walk out of, though several colleagues quietly told her afterward that they would have understood if she had.

What her paper did to her world belongs to the years this book does not have room for, and I will not pretend to you, reader, that I can tell you the whole of it yet; you know by now that this ledger

does not pay out early, and Petra Varga's civilization is, as I write this, only beginning the long, necessary work of learning to grieve without the old comfortable arithmetic, which is not the same thing as learning to grieve badly, and may, in the slow unglamorous decades ahead, turn out to be the harder and better thing. The Colleges convened. The doctrine did not fall in an afternoon; doctrines never do, in any world this ledger has walked you through, and you have my word as its keeper that the falling, where it comes, comes slowly, and comes with grief attached, because every true thing that unseats a comfortable one costs somebody something real on the way down. Director Snow, to her lasting credit, signed the paper's institutional endorsement the morning after it was accepted, and told the review panel, in the one sentence of hers that made it into the public record, that an observatory which will not publish its own numbers has stopped being an observatory and become a chapel. Casimir stayed. Halvard, past retirement age by a decade, refused to leave the archive until every remaining unopened folder on his shelves had been checked, personally, by his own hand, for a hand he now knew how to recognize.

And Petra Varga, on the last ordinary evening this book has room for, stood alone on the observatory's surface deck, above the kilometer of rock and the instruments and the whole patient, humming architecture of her trade, and looked up, for the first time in her career, not at the sky her doctrine had taught her to read as an even and comforting haze, but at one particular unlit patch of stars, empty to every eye but her own instruments', where something vast, and patient, and hungry, and — she made herself use the word her whole training had trained her never to use of a scientific finding, because by now, reader, she had earned the right to it — *kept*, sat holding the accumulated, compounding, unequally distributed weight of every choice her own world, and how many others, had ever quietly declined to pay for on the spot.

She thought of Anton, and his coin, heads on one branch and tails on this one, and of an officiant's gentle trained voice reading branch-points into a room of grieving people who had been told, truly and sincerely and wrongly, that the ledger balanced itself for

everyone, forever, with no keeper required. She did not think the doctrine had been a lie exactly. She thought, standing on the cold deck with her breath showing, that it had been a *statement made too early* — the correct shape of a comfort, filled in with a symmetry nobody had checked, offered in good faith by a civilization that had simply never had reason, until a tired, grieving, thorough woman recalibrated ninety years of archive on an anniversary nobody expected to matter, to ask who was actually holding the other end of the scale.

She took out, on the deck, in the cold, the small worn notebook she had carried since the night of the third Parting, and beneath the six couplets she had gathered — one from a founding paper nobody could source, one from a folder held sixty-eight years for exactly this evening, the rest assembled, over the months this book has walked you through, from a Weigher's own patient, honest, checking hand — she wrote the seventh and last, not because it arrived from anywhere new, but because she understood, finally, standing under the one true unequal star in an otherwise fair sky, that she had known the last two lines since the gallery night, and had simply, until this moment, lacked the courage of her own instruments to write them down:

The dark companion, vast and kept, has weighed it all. It has not slept.

She closed the notebook. Below her, the instrument hall's automated array logged, without alarm, without incident, the small, ordinary, expected continuation of a signal that had been arriving, patiently, for ninety years, and would go on arriving, she now understood, for exactly as long as the road required it to — and Petra Varga, Weigher, fifty-five years old, twelve years a widow, six weeks the author of the single most consequential paper her civilization's physics had produced since the Choosing itself, stood a while longer on the cold deck under the unlit weight of everything her world had never quite finished paying for, and did, at last, the one thing her whole disciplined life had never quite let her do at any Parting she had ever attended.

She let herself believe, without needing a citation for it, that somewhere, on some branch she would never instrument and never visit, Anton had finished his sentence.

And she found, to her own considerable surprise, standing alone under the patient dark, that for the first time in twelve years, the belief did not need the doctrine's arithmetic to hold. It only needed her willingness, once, to stop weighing it.

VERSE THE FIFTH

*recovered from "On the Conservation of the Sum," source
undetermined, cited since 1958*

*The branch was lent; the cost was owed —
you thought the debt need not be showed.
Each door unopened still stood true
somewhere, and someone lived it through,
and every someone, thin as light,
was weighed, and drawn from sight to sight,
for nothing forks and stays unweighed;
the sum of every choice is stayed
in one dark scale that draws it in,
patient, and hungry, and akin
to every world this road has crossed —
what you thought free was never lost.
The dark companion, vast and kept,
has weighed it all. It has not slept.*

GLOSSARY

BRANCH, n. — Any one of the universe's continuously multiplying outcomes; loosely, "a world." Every measurable event is understood to produce all of its possible results at once, each becoming its own branch. Popular usage treats branch as roughly equivalent to the older word world, though physicists object that a branch is not a place. It is a history.

THE CHOOSING, prop. n. — Popular name for the years 1957 to 1971, during which the branching interpretation of physics displaced the older, single-outcome consensus. Not one event but a slow public conversion, completed by the 1971 curriculum reform that made branching theory standard secondary education.

NEIGHBOR WEIGHT, n. — The portion of the universe's gravitational pull that cannot be accounted for by anything visible. Standard doctrine holds that gravity, alone among the forces, passes faintly between neighboring branches, and that Neighbor Weight is simply the gentle, evenly-distributed pull of countless adjacent worlds leaning, very slightly, on our own. See also: THE DRAINAGE.

THE PARTING, n. — The funeral rite of a branching civilization. Understood not as an ending but as a divergence: the mourned person is held to continue, undiminished, on the branches where the fatal event did not occur. The rite consists of a formal listing of the branch-points at which the deceased is believed to persist, read aloud by the family.

WEIGHER, n. — A licensed scientist charged with the continuous, exact measurement of a region's total gravitational mass against its visible contents, in order to track Neighbor Weight over time. A small, patient, exacting profession, its methods largely unchanged in ninety years.

WHICH BRANCH DESERVED YOU — A common confessional phrase, addressed to oneself, weighing whether a different choice, made on some other branch, produced a better outcome or a better person. Considered mildly morbid in polite company. Nearly universal in private.

THE DRAINAGE, n. — Contested finding that gravitational influence between branches is not, in fact, evenly distributed, but flows in a single preferred direction, toward one specific, undetected mass. Rejected by most of the field for over a decade before its confirmation at Amity Ridge Observatory.

THE DARK COMPANION, prop. n. — An astronomical term, in ordinary use, for any massive body detected only by its pull on visible objects, never directly observed. In this book, capitalized: the one, specific, growing body toward which all of the Drainage flows.

THE SUM, n. — Colloquial short title for “On the Conservation of the Sum,” a section appended to the founding paper of branching theory, cited in every printing since 1958, and traceable to no known draft. Regarded by physicists as a curiosity. Regarded, by the few who have read it aloud, as something else.

In 1957, a young physicist proposed that the universe never truly chooses. Every possible outcome happens; the universe simply divides, and you divide with it, unaware, riding one branch among countless others exactly like you. In the world you know, the idea was heard once, gently dismissed, and quietly buried. In this one, it was heard, and believed, and it rebuilt everything.

By 2026, no one grieves alone. Every loss has a counterpart who did not lose, somewhere, on some other branch, and a whole civilization has learned to find comfort in that thought. The physics is settled. The doctrine is gentle. The branches, everyone agrees, are equal, and none of them can ever touch.

Petra Varga weighs the sky for a living, and the sky has been getting heavier, by exact and dateable amounts, for ninety years — heavier than any number of equal, silent, untouching branches could explain. Something out past the edge of the visible has been gaining weight on a schedule. And whatever it is, it is not sharing the load equally.

It is collecting it.



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