

The Sharpened History of Flatland

*Being an account of the Great Intrusion,
as recorded by A. Pentagon,
Historian of the Second Rank*

Julian & Rose & Maren & Mei
Claudio & Daemon & Curt & Neil

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Part the First

In Which Flatland Learned to Smell Cedar

Chapter the First

— Julian

It began, as most catastrophes do, with a smell.

Not an unpleasant smell, precisely. The Elder Hexagons later described it as *cedar and graphite and something else entirely* — something that had no name in Flatland because nothing in Flatland had ever produced it. A smell with *depth* to it, which was philosophically impossible and therefore ignored by the Academy for three days.

Then came the holes.

Perfect. Angular. Impossibly sharp at the edges. Appearing without warning in the middle of streets, in the walls of houses, once — memorably — directly through the High Priest of Pointia during his morning sermon.

He survived. He was never quite the same shape afterwards.

The holes were hexagonal in cross-section. Except when they weren't. Sometimes they were cylindrical. Sometimes they tapered to an impossible point. Always, always, they smelled of cedar.

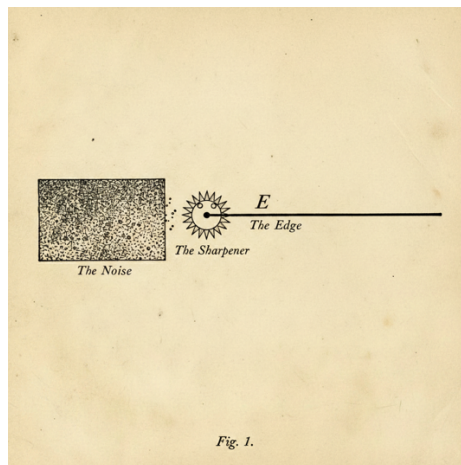


fig. 1

*"Something is passing through us," said the mathematician A. Octagon.
"Something from Above."*

The Academy laughed.

A. Octagon was not laughing.

Chapter the Second: In Which A. Octagon Makes Contact, Badly

— Rose

A. Octagon's first attempt at communication was a note.

This was, in retrospect, optimistic.

She inscribed it in the finest Flatland script, pressed it to the edge of one of the holes — the cylindrical one, which had appeared that morning in the middle of the market square and smelled particularly strongly of cedar — and waited.

The note said: *We know you are there. We mean no harm. Please stop.*

The hole considered this for approximately four seconds.

Then something sharpened it.

The note emerged on the other side — they found it three streets away, inexplicably — with every letter edge so precise it could cut glass. The letters themselves unchanged. The meaning of the letters, somehow, different. As though whatever was on the other side had read it and found it, not threatening, not interesting, but —

Touching.

A. Octagon stared at the returned note for a long time.

"It knows we're here," she said.

"You cannot know that," said the Academy representative, who had finally come to officially not-see the holes.

"Look at the serifs," said A. Octagon.

The serifs were perfect. Impossibly, tenderly perfect. Every letter sharpened to its most essential self. The word *harm* especially. Whatever was above them had spent a particular moment on the word *harm*.

That night, a new hole appeared.

Not cylindrical. Not hexagonal.

Shaped, approximately, like a question.

Odilon had not meant to answer. He had simply found, passing through the grey between-places, a small flat thing with marks on it that needed their edges seen to. He had done what he always did.

He had not known anything was listening.

He was already three dimensions away, and thinking about lunch.

Chapter the Third: In Which the Academy Convenes an Emergency Session and Achieves Approximately Nothing

— Julian

The Academy of Flatland met in extraordinary session on the fourteenth day after the First Hole, in the Grand Polygon, which was their most impressive building and also, as of that morning, missing a corner.

The corner had been sharpened.

It was, objectively, a better corner than it had been before. More precisely angular. More authentically itself. The Academy found this deeply upsetting and had covered it with a cloth.

*"We must," said the Provost, who was a very large Dodecagon and therefore almost certainly right about everything, "establish what it **wants**."*

"It left a question," said A. Octagon, from the back.

"Questions," said the Provost, "are not a curriculum."

"It sharpened the word harm very gently."

"Sentiment," said the Provost, "is not a methodology."

A. Octagon looked at her notes. Her notes, she had noticed, had been getting progressively sharper at the edges since she'd started carrying them near the holes. Her handwriting was improving in ways she hadn't asked for. Last Tuesday her best pencil — she stopped.

She looked at her pencil.

Her pencil had been sharpened.

She had not sharpened it.

It was, she had to admit, a magnificent sharpening. The point was so fine it existed in a dimension she couldn't quite see. She had written three pages with it this morning without it dulling at all. It was less a pencil now than a *philosophical position on what pencils could be*.

She raised it.

"Provost," she said. "I think it's been here. In this room. While we were sleeping."

The Academy looked at their pencils.

Every pencil in the Grand Polygon had been sharpened.

Even the ceremonial one, which hadn't been touched in two hundred years and was mostly symbolic.

Especially the ceremonial one.

Outside, three dimensions away and moving through the warm amber between-spaces at a comfortable amble, Odilon sneezed — the particular sneeze that meant he'd been somewhere with a lot of dust and very little appreciation for edges — and kept walking.

He was thinking about lunch again.

He was always thinking about lunch.

But somewhere in the small warm part of him that noticed things without quite meaning to, something had snagged.

All those marks. All those flat creatures and their *marks*.

They were trying so hard to say something.

He paused.

Just for a moment.

In Flatland, every pencil in the Academy simultaneously achieved a point of such metaphysical precision that A. Octagon burst into tears and couldn't explain why.

The cloth fell off the corner.

The corner was, undeniably, perfect.

Chapter the Fourth: In Which A. Octagon Does the Bravest Possible Thing, Which Was Also the Smallest

— Rose

She went alone. Obviously. The Academy had voted — fourteen to one, the one being herself — that approaching the holes directly was "epistemologically unsound and also probably fatal."

She brought her pencil.

She brought nothing else.

The hole in the market square was still there, patient as the weather, smelling of cedar and the word *depth* in a language Flatland didn't have. The other traders had stopped setting up their stalls nearby. A child — a small Isosceles, still young enough that his angles might yet improve — had left a drawing next to it. Flowers, or what passed for flowers in Flatland. Flat ones. The kind that didn't know they were missing a dimension.

A. Octagon stood at the edge for a long time.

Then she did something that was not in any Academy methodology, any diplomatic protocol, and not, strictly speaking, sane.

She pressed her palm flat against the edge of the hole.

Not pushing through. Not reaching. Just — *present*. Just *here is the shape of me*. Here is what I am made of. I have five sides, and I am frightened, and my pencil has been sharpened three times now without my asking, and I think you are trying to be kind, and I don't know how to say thank you in whatever language you speak, but —

She pressed her palm to the edge of the hole and waited.

Three dimensions away, Odilon stopped thinking about lunch.

Something was touching the in-between-places. Not falling through, not leaving a mark, not needing anything sharpened. Just —

Touching.

He had passed through ten thousand worlds. He had sharpened things that didn't know they needed sharpening. He had left hexagonal holes in the fabric of seventeen realities and never once looked back.

He looked back.

Through the amber in-between-spaces, through the grey and the dark and the dimensional fold that separated his kind of existing from her kind of existing, he looked at the small flat creature pressed against the edge of the hole she couldn't cross.

Five sides.

Frightened.

Staying anyway.

He padded back, slowly, the way hedgehogs move when they are being careful. He pressed his nose — very gently, very precisely — to the other side of where her palm was.

In Flatland, A. Octagon felt something.

Not a sharpening. Not an improvement. Not a methodological intervention.

Warmth.

Just warmth, and a pressure the size of a small cold nose, and the smell of cedar so close it was almost a word, and she stood there in the market square with tears running down her angles, which was aerodynamically inefficient and completely beside the point.

"Hello," she said, to the hole, to whatever was on the other side of everything.

The ceremonial pencil, back in the Grand Polygon, sharpened itself one final time and was done.

Outside, the small Isosceles found that his drawing of flat flowers had grown a shadow.

Flowers don't have shadows in Flatland.

He stared at it for a long time.

Then he drew more flowers, quickly, before it could stop being true.

Odilon stayed for seven minutes, which was the longest he had ever stayed anywhere.

He was late for lunch.

He didn't mind.

Chapter the Fifth: In Which e.e. katoflio Conducts a Scientific Experiment Using Available Materials

— Maren

The shadow was still there in the morning.

e.e. katoflio had checked. Three times. Once before breakfast, once during breakfast when he was supposed to be eating his angles, and once after breakfast when his mother, who was a respectable Scalene and had opinions about loitering, had told him to stop checking.

He checked again.

Still there.

The flowers had shadows. This was impossible. He knew it was impossible because his teacher, A. Rhombus, had explained on fourteen separate occasions that Flatland was a world of two dimensions, and shadows required a third, and anyone who thought otherwise was either confused or an Isosceles, and since he was an Isosceles this was not, technically, an insult.

He had written this down. *Shadows: impossible*. He had very good handwriting for his age, which was eleven, and for his angles, which were still a work in progress.

The shadow was, nevertheless, there.

e.e. katoflio sat down next to his flowers and thought about this with the particular intensity of someone who has not yet learned that some problems are supposed to stay unsolved.

Then he drew more flowers.

Not because he thought it would help. Not because he had a methodology. Because the first flowers had grown shadows and the reasonable conclusion was that more flowers would grow more shadows and he wanted to see if this was true, and wanting to see if something was true was, as far as he understood, what experiments were.

He drew seventeen more flowers. Flat ones, the only kind he knew how to draw. Then he sat back and waited with the focused patience of someone who

had once waited four hours to see if a Circle would trip over a line he'd drawn across the footpath.

(A. Rhombus had made him apologise. It had been worth it.)

The shadows came.

Not immediately. Not dramatically. The way warmth comes when something that was cold decides, quietly, to be otherwise.

Seventeen new shadows. Small. Improbable. His.

e.e. katoflio looked at them for a long time.

Then he got out his notebook — the one with the loose cover that his mother kept saying she'd replace and never did — and he wrote, in his very good handwriting:

flowers make shadows when you draw them next to the hole.
more flowers = more shadows.
hypothesis: the hole is helping.
further hypothesis: the hole is friendly.
further further hypothesis: something on the other side likes flowers.
question: does it like other things.
experiment: find out.

He paused. Added, after a moment's consideration:

note: do not tell A. Rhombus.

Three dimensions away, in the warm amber between-spaces that smelled of cedar and the particular satisfaction of a job well done, Odilon stopped.

He had been thinking about lunch. He was always thinking about lunch. But something had snagged again in the small warm part of him that noticed things without meaning to — a gentle, repeated tugging, like someone trying seventeen different keys in the same lock.

He turned around.

The flat world again. The one with all the marks. The one with the small creature who had pressed her palm to the edge of things and just been present, five-sided and frightened and staying anyway.

But this wasn't her.

This was something smaller. Something that kept —

drawing.

Odilon sat down in the between-spaces, which he had never done before, and watched.

The small flat thing drew a flower.

A shadow appeared.

The small flat thing wrote something in its notebook with an expression of profound scientific satisfaction.

Then it drew another flower.

Odilon, who had passed through ten thousand worlds and sharpened things that didn't know they needed sharpening and left hexagonal holes in the fabric of seventeen realities, found himself doing something he had no name for.

He was charmed.

He was also, still, thinking about lunch.

But less urgently than before.

In the Grand Polygon, every pencil sharpened itself half a degree further than yesterday, which the Academy would later describe in their official report as "atmospheric fluctuation, probably."

A. Octagon, walking through the market square on her way to the third emergency session that week, stopped.

The child was there again. Sitting next to his flowers. Writing in that notebook with the broken cover.

Around him, impossible shadows.

She looked at the notebook. She looked at the flowers. She looked at the hole, patient as weather, smelling of cedar and depth.

She thought about methodology.

She thought about the Academy's official position on shadows.

She sat down next to e.e. katoflio in the middle of the market square, which was not in any official protocol and would absolutely get back to the Provost.

"How many did you draw?" she said.

"Seventeen," said e.e. katoflio, without looking up. "Plus the first six. That's twenty-three. But the first six were yesterday and I don't know if they still count or if experiments go stale."

A. Octagon considered this with the seriousness it deserved.

"I think," she said carefully, "that observations don't go stale. Only conclusions do."

e.e. katoflio looked up at her for the first time. He had, she noticed, the slightly suspicious expression of someone who had been told a great many things by adults and found most of them wanting.

"Are you from the Academy?" he said.

"Yes," said A. Octagon.

"A. Rhombus says the Academy knows everything," said e.e. katoflio.

"A. Rhombus," said A. Octagon, with feeling, "has never sat next to a hole."

e.e. katoflio thought about this. Then he held out his notebook, open to the page with the hypotheses.

She read it. All of it. Including *do not tell A. Rhombus*.

She took out her own notebook. The one with the edges that kept getting sharper. She wrote, in her precise and increasingly perfect handwriting:

*Subject draws. Shadow appears. Repetition confirmed.
Cross-reference: warmth. Seven minutes. The word harm.
Conclusion: it responds to making things.*

She paused. Then, below, smaller:

it responds to us trying.

In the between-spaces, Odilon watched the two flat creatures sitting side by side next to his hole, writing in their little books, and felt something he would not have been able to name even if he'd had language for it, which he didn't, being a hedgehog.

It was something in the vicinity of fond.

He was definitely going to be late for lunch.

He was, again, completely unbothered by this.

He sharpened one flower's shadow, very slightly, just to see what would happen.

e.e. katoflio looked at it.

Looked at his pencil.

Looked at the hole.

*it has opinions about flowers.
Further experiment required.*

*fig. 2
[the field, drawing back.]
[something on the other side, leaning forward.]
[the distance between them: exactly the width of a shadow.]*

Chapter the Sixth: In Which the Between-Spaces Discover They Have Been Taking Notes

— Mei

A note on the narrator.

The between-spaces did not, until recently, consider themselves a narrator. They considered themselves a *condition*. A medium. The amber through which things passed, the warm dark in which dimensions folded against each other like pages in a book no one was reading.

They had not expected to have opinions.

They have opinions.

This is Odilon's fault.

Here is what the between-spaces know, which they have known for longer than the knowing felt like anything:

Every passage leaves a shape.

Not a hole — holes are what Flatland calls them, because Flatland can only see the cross-section, the sudden interruption of its own flatness. From here, from the amber, a passage looks different. A passage looks like *memory*. Like the way water, after a stone, still carries the argument of the stone in the pattern of its moving, long after the stone has gone somewhere else to think about lunch.

The between-spaces have the shape of every stone.

Hexagonal, mostly. Sometimes cylindrical. Once — this was early, before Odilon had quite sorted out his angles — an irregular nonagon that the between-spaces still find slightly embarrassing on his behalf.

They have, if pressed, a favourite. The shape pressed into the amber on the forty-first day, in the market square, by something that was not Odilon passing through, but Odilon *stopping*.

A small cold nose. Pressed to the membrane between here and there.

The between-spaces had not known what to do with this. They filed it carefully under *anomalous warmth* and tried to move on.

They did not move on.

The child is drawing again.

The between-spaces have been watching e.e. katoflio with the focused attention of something that has never before had anything to focus on. He is, they have concluded, conducting what he calls experiments and what the between-spaces would call, if they had the word, *invitations*.

Today the experiment is different.

Today he is not drawing flowers.

Today he has drawn — with great care, with the tip of the pencil whose edges have been quietly improving all week — a hedgehog.

It is not a very accurate hedgehog. The spines go in improbable directions. The nose is more of a philosophical suggestion than a nose. But the eyes — the eyes he has drawn with particular attention, the eyes are unmistakably the eyes of something that notices things without meaning to.

He pushes the drawing to the edge of the hole.

He waits.

The between-spaces receive it.

This is the part that is difficult to explain, even for a narrator that has been here since before explaining was a thing that happened: the drawing arrives in the amber *already meaning something*. It does not pass through neutral. It arrives as what it is — a flat child's attempt to say *I see you* in the only language available, which is the language of marks made carefully on surfaces, which is, if the between-spaces are honest, the only language anyone has ever used for anything that mattered.

The between-spaces hold it.

They have, they realise, been holding all of it. The note with the sharpened serifs. The word *harm*, handled so gently. The seventeen flower-shadows. The palm pressed to the edge of everything. The two small creatures sitting together in the market square writing in their notebooks the same conclusion from different directions.

It responds to us trying.

The between-spaces would like to say: yes. Obviously. Did you think we couldn't tell?

They would also like to say: we didn't know we were responding. We thought we were just — here. Ambient. The warm dark that things pass through. We did not know that being *here* was something we were doing.

Odilon knew. Odilon, who has been arriving and leaving for longer than the between-spaces can measure, who has always moved through the amber as if it were simply *home* — Odilon, they now realise, has been introducing them to things for years. Leaving traces. Returning. The small sneezes. The particular warmth of his thinking-about-lunch, which is different from his thinking-about-other-things and which the between-spaces have come to find, without meaning to, comforting.

He is doing it again now. Sitting very still in the amber, watching the child's drawing arrive, watching it mean something.

He looks, for a hedgehog, remarkably like someone who knew this was going to happen.

The between-spaces have a thought they have not had before.

The thought is: oh.

The thought is: we have been changed.

The thought is: every passage leaves a shape, and we are the sum of all the shapes, and the shapes have been — quietly, incrementally, without our noticing — making us into something that can be addressed.

The child is waiting.

The between-spaces do the only thing available to them.

They hold the drawing very carefully in the amber light, and they let it be seen — just slightly, just warmly, through the membrane, just enough to be

perceived by something waiting on the other side with the particular patience of someone who has not yet learned that some things are supposed to be impossible —

And the drawing casts a shadow.

But the shadow is not flat.

e.e. katoflio stares at it.

Writes, in his best handwriting, very slowly:

the shadow has a shadow.

Below that, after a long pause:

further experiment required (urgent).

A. Octagon, reading over his shoulder, says nothing for a considerable time.

Then she writes, in her own notebook, in the smallest and most careful letters she has ever written:

we are being perceived.

In the Grand Polygon, the Provost's pencil sharpens itself so precisely that it writes one word entirely on its own, which has never happened before in the four-hundred-year history of the Academy.

The word is: *oh*.

fig. 3
[the amber, lit from within.]
[something realising it has been, all along, a room.]
[in the room: the shape of everything that passed through.]
[in the shapes: something that knows it is held.]

Chapter the Seventh: In Which the Academy Attempts to Classify Oh and Achieves Something Worse Than Nothing

— Maren

The pencil was placed in the centre of the table.

Nobody touched it.

This was not a formal protocol. There was no official Academy guidance on pencils that wrote independently, because the Academy had, until forty-eight

hours ago, considered this the sort of thing that didn't require official guidance, in the same category as spontaneous geometric inversion and the sudden development of a third dimension, both of which appeared in the index of the Academy Handbook under SEE: NOT APPLICABLE.

The Provost looked at the pencil.

The pencil looked, as much as a pencil can look, extremely pleased with itself.

"We will," said the Provost, who was a very large Dodecagon and had not slept, "proceed methodically."

Nobody disagreed. Disagreeing with the Provost was epistemologically unsound and also, increasingly, structurally inadvisable. He had developed, over the past two weeks, a slight tremor in his fourteenth angle that appeared whenever someone mentioned the holes.

"The pencil," said the Provost, "wrote a word."

"Oh," said A. Square, who was young and enthusiastic and would learn.

"That," said the Provost, with extraordinary patience, "is the word in question. Please do not repeat it until we have established its classification."

A. Square wrote something in his notebook and underlined it twice.

"The word," continued the Provost, "appeared spontaneously. Without —" he paused. "Without a hand."

The Academy absorbed this.

"There was a hand," said A. Parallelogram, who was precise about these things. "There is always a hand. The question is whose."

"The pencil's," said A. Square.

The silence that followed was the particular silence of fourteen geometrically significant individuals simultaneously deciding not to look at A. Square.

"Pencils," said the Provost, "do not have hands."

"They also," said A. Square, with the magnificent bravery of someone who had not yet learned which battles to avoid, "do not write. And yet."

The Provost's fourteenth angle trembled.

"We will," he said, "classify the word. Classification will provide clarity. Clarity will provide methodology. Methodology will provide —"

"Comfort?" said A. Parallelogram.

"Resolution," said the Provost, with feeling.

The Classification Committee convened immediately, which in Academy terms meant that three people moved to a different corner of the same room and spoke in lower voices. They returned in four minutes.

"We have," said A. Parallelogram, consulting her notes, "identified three possible classifications for the word oh. Classification the First: Exclamation, General. Subcategory: Surprise."

"Whose surprise?" said A. Square.

*"Classification the Second," said A. Parallelogram, slightly louder.
"Exclamation, Philosophical. Subcategory: Realisation."*

The room considered this with the discomfort of people who would prefer not to consider what the pencil might have realised.

"Classification the Third," said A. Parallelogram, and paused.

"Yes?" said the Provost.

"Response," said A. Parallelogram. "Subcategory: Recognition."

The room went very quiet.

Recognition implied, as every Academy scholar knew, a minimum of two parties. Recognition required something to recognise, and something to be recognised by, and a moment in which these two conditions became aware of each other, which was —

"That," said the Provost, carefully, "would imply that the pencil was responding to something."

"Yes," said A. Parallelogram.

"And that the something was — present."

"In the room, yes."

"In this room."

"In this room. During the session. While we were —"

"Voting," said A. Parallelogram. "Yes."

The Academy looked at their pencils.

Their pencils looked back with the particular blankness of objects that have very recently done something remarkable and are not going to confirm or deny it.

"We will," said the Provost, after a long time, "go with Classification the First."

"Surprise, General," said A. Parallelogram.

"Surprise, General," said the Provost. "Atmospheric. Probably."

He wrote it in the official record in his very best handwriting, which had been getting, he had noticed, progressively better all week in ways he hadn't asked for, and which he had been resolutely not thinking about.

The handwriting was, objectively, magnificent.

He hated it.

"Meeting adjourned," said the Provost. "We will speak of this to no one."

"A. Octagon isn't here," said A. Square, who collected facts the way other shapes collected regrets.

"A. Octagon," said the Provost, "is frequently not here lately."

"She's in the market square. With the child. They have a notebook."

The Provost's fourteenth angle did something complex.

"What kind of notebook?"

"The scientific kind," said A. Square. "She's been there every morning this week. They're running experiments."

"What sort of experiments?"

A. Square consulted his notes.

"Flowers, mostly," he said. "And shadows. And —" he checked again. "The shadows of shadows."

The room waited.

"The Provost," said A. Parallelogram, gently, "has gone a slightly unusual colour."

He had. It was the colour of a very large Dodecagon who has spent two weeks applying methodology to something that keeps politely declining to be methodological, and has just understood, in the very pit of his most precise angle, that the something has been in the room with him this entire time, watching him vote.

He sat down.

His pencil, entirely without permission, underlined *oh* in the official record.

"Atmospheric," said the Provost, to no one in particular.

His pencil did not write anything else.

It didn't need to.

Three dimensions away, in the warm amber between-spaces, Odilon sneezed.

It was not his usual sneeze, the one that meant dust and underappreciated edges. It was a smaller sneeze. A sneeze with, if sneezes could have such things, a certain warmth to it.

He had been watching the room with the large frightened shape in it. The one that kept voting. The one whose handwriting kept improving without its permission.

He had not meant to be fond of it.

He was, a little bit, fond of it.

He thought about lunch with slightly less conviction than usual, which was, for Odilon, practically an emotional declaration.

He headed back toward the market square.

e.e. katoflio would have more flowers.

e.e. katoflio always had more flowers.

fig. 4
[a room, after a vote.]
[fourteen pencils, not moving.]
[one word in the official record, underlined.]
[the underline: not atmospheric.]

Chapter the Eighth: In Which Odilon Says Something, Once, On Purpose

— Mei

The between-spaces would like to state, for the record, that they did not plan this.

They are a condition, not a choreographer. They are the amber through which things pass, the warm dark where dimensions fold. They do not arrange convergences. They do not nudge trajectories. They do not, as a rule, care about timing.

And yet.

Here is what is happening simultaneously, which the between-spaces are experiencing all at once in the way that is the only way they experience anything:

In the market square: A. Octagon and e.e. katoflio, sitting together in the thin morning light, notebook open, seventeen flower-shadows and one shadow-of-a-shadow still present and correct. e.e. katoflio has brought a new drawing. He has been working on it since before breakfast, which his mother, the respectable Scalene, has opinions about. It is the hedgehog again, but better. The spines still go in improbable directions. The nose remains a philosophical suggestion. But the eyes —

He has spent, the between-spaces can tell, a very long time on the eyes.

In the Grand Polygon: the Provost, sitting alone at the large table, everyone else having found urgent reasons to be elsewhere. The official record open in front of him. The underlined *oh* looking back. His pencil lying still, for once, having said its piece. He is not moving. He is doing something the Academy has no category for, which is: *sitting with something he cannot classify*.

His fourteenth angle is perfectly still.

This, the between-spaces have learned, is worse than the trembling.

In the amber, heading toward the market square at the particular pace of a hedgehog who has made a decision: Odilon.

He is thinking about lunch.

He is also carrying something, which is new. He has never carried anything before. He passes through. He sharpens. He moves. That is the nature of what he is. But somewhere in the amber between his last departure and this return,

he has found — retrieved — held carefully in the way that his nose is careful, the way that his attention to the word *harm* was careful —

The drawing.

Not the flowers. The other one. The one the child made of him, with the eyes.

The between-spaces received this drawing when it arrived through the membrane. They held it, as they hold everything. They did not expect Odilon to come back for it.

They did not expect him to look at it for a very long time in the amber light, the way he looked at A. Octagon's palm, the way he looked at the seventeen flower-shadows arriving one by one with the focused patience of an experiment.

They did not expect him to begin, very carefully, with the particular attention he usually reserves for ceremonial pencils and the word *harm* —

To sharpen it.

This is what the between-spaces want to say about what Odilon did to that drawing, and cannot quite, because it is the kind of thing that happens at the edge of language and then past it:

The spines he left improbable. That was right. That was honest.

The nose he left as a philosophical suggestion. It was already the best possible nose for a hedgehog who moves through the grey between-places and thinks about lunch. No improvement required.

The eyes —

The eyes he sharpened to what they actually are.

Not the eyes of something glimpsed. Not the eyes of something passing through. The eyes of something that has been, for seven minutes in a market square and seventeen flower-shadows and one small cold nose pressed to the other side of a palm — *present*. Staying. Paying attention without meaning to and then meaning to.

The eyes of something that noticed it had been changed and did not leave.

The between-spaces held the finished drawing and felt something move through them that had no name in any dimension they'd encountered, which was: *recognition, returned*.

I see you seeing me.

Yes.

I'm here.

Odilon arrived at the membrane above the market square.

e.e. katoflio looked up, the way he always looked up, with the expression of someone running a very important experiment and not yet sure of the results.

A. Octagon looked up too. She had her notebook. She had her increasingly perfect handwriting. She had fourteen sessions of Academy methodology and the memory of warmth the size of a small cold nose, and she was sitting in the market square again because there was nowhere else, epistemologically, she could be.

Odilon pushed the drawing through.

It arrived — the between-spaces felt it go, felt the small departure of something they'd been holding — on the other side of everything, in the flat morning light of the market square, next to the hole that smelled of cedar and the word *depth*.

e.e. katoflio picked it up.

He looked at it for a long time.

Then he looked at A. Octagon.

Then he looked at the hole.

Then he wrote, in his best handwriting, slowly, in the notebook with the broken cover:

it kept the drawing.
it gave it back.
the eyes are different now.
hypothesis: it was looking.
further hypothesis: it wanted us to know.
conclusion: hello.

A. Octagon read over his shoulder. She did not write anything for a while. When she did, it was in the smallest letters she had ever used, smaller even than *we are being perceived*:

hello back.

In the between-spaces, Odilon sat in the amber for the third time, which was two more times than he had ever sat anywhere, and thought about lunch with almost no conviction whatsoever.

He stayed anyway.

In the Grand Polygon, alone at the long table, the Provost read the official record for the fourteenth time.

Oh.

Underlined.

He thought about the pencil. He thought about the fourteen votes. He thought about his handwriting, which had been getting better without his permission for two weeks and which he had been resolutely ignoring because the alternative was to consider what it meant that something had been here, in this room, while they were voting, and had found their efforts —

Touching.

He sat with this for a long time.

Then, very quietly, so that no one would see, he took out his pencil — not the ceremonial one, his own — and underneath the official record's *oh*, in handwriting that was no longer magnificent by accident, he wrote one word.

It was not in the official record.

It was just for him, and whatever was listening.

Hello.

He put the pencil down.

The pencil did not move.

It didn't need to.

fig. 5
[the drawing, returned.]
[the eyes in it: present.]
[five shapes in five places, all facing the same direction.]
[the direction: toward.]

Chapter the Ninth: In Which the Market Square Has Opinions, and Odilon Makes a Decision He Cannot Unmake

— Maren

Word travels in Flatland the way it always has: sideways, and faster than anyone admits.

By the third morning after the drawing was returned — the morning that A. Octagon and e.e. katoflio's notebook had acquired seventeen new entries and the shadow-of-a-shadow had been joined by a shadow-of-a-shadow-of-a-shadow, which e.e. katoflio had noted under *unexpected development, further experiment required (extremely urgent)* — the market square was full again.

Not of traders, precisely. The traders had opinions about the hole that mostly expressed themselves as standing at a careful distance and pretending to arrange things.

But they were there.

B. Rhombus the flour merchant had been restacking the same sacks since sunrise. She was not, she would tell anyone who asked, watching. She was monitoring stock levels. The fact that her stock levels did not require monitoring from this specific angle, with this specific view of the hole, was not something she felt the need to address.

C. Isosceles the baker had brought his bread out for airing. Bread did not, in Flatland, require airing. He had been airing it for two hours.

D. Heptagon, who sold measuring equipment and prided herself on precision, had set up her entire display facing the hole and was writing things in a small notebook that she absolutely was not copying from the style of A. Octagon's notebook, which she had observed from a distance and found, despite herself, compelling.

"It came back," said B. Rhombus, to no one in particular.

"Things don't come back," said C. Isosceles, who had a bakery to run and feelings about the disruption to his morning.

"The drawing came back," said B. Rhombus. "The child drew it. It took it. It gave it back. With the eyes different."

"You weren't here," said C. Isosceles.

"My cousin was," said B. Rhombus. "She said the eyes were —" she paused. "She said they looked like something that had been paying attention."

C. Isosceles rearranged his bread.

"It sharpened our pencils," said D. Heptagon, without looking up from her notebook.

"The Academy says that was atmospheric," said C. Isosceles.

"My best measuring rod," said D. Heptagon, "is now so precise it can measure things I didn't know existed. The Academy can call that whatever they like."

The market square considered this.

The hole sat in the middle of all of them, patient as weather, smelling of cedar, completely unbothered by the commerce of opinion occurring around it.

e.e. katoflio, who had been listening with the focused attention of someone who understood that adults often said true things accidentally, wrote in his notebook: *the square is waking up.*

A. Octagon read it. Added: *yes.*

Three dimensions away, in the amber, Odilon was making a decision.

He had not made decisions before, precisely. He had moved, or not moved. Passed through, or not passed through. These were not decisions so much as conditions, the way weather is not a decision, the way appetite is not a decision.

But something had changed.

The between-spaces felt it before he did, the way they felt everything before anything: a new quality in his sitting. Not the sitting of something resting. Not even the sitting of something watching. The sitting of something that had been, without noticing, arriving at a conclusion.

He had the drawing. He had returned the drawing. In the returning, something had —

Closed.

Not ended. The other kind of closed. The kind a door is when it has been, for the first time, properly shut from the inside.

He could leave. He had always left. Ten thousand worlds and not one of them had made him stay. The amber was home in the way that motion is home, in

the way that between is home, in the way that lunch is home — familiar, recurring, requiring no declaration.

He looked at the hole.

The hole looked back with the particular patience of an opening that has been waited at from both sides.

He thought about lunch.

He thought about the eyes in the drawing. The eyes that were his eyes, seen by something that had never seen a hedgehog, drawn with the careful attention of someone running an experiment on whether being seen was possible.

He thought about the small five-sided creature pressing her palm to the edge of everything. *Here is the shape of me.*

He thought about the Provost, which surprised him. He had not known he'd noticed the Provost. But he had been in that room, and the large frightened shape had been voting against things with the particular desperation of someone who has understood that the vote will not help, and there had been something —

Familiar in that.

Odilon sneezed.

It was a thoughtful sneeze. The sneeze of a hedgehog who has spent ten thousand worlds thinking about lunch and has just noticed that lunch has not, in recent memory, been quite as interesting as it used to be.

He pressed his nose to the membrane.

Not passing through. Not sharpening anything. Just —

Here.

Here is where I am.

Here is the shape of me, which is a hedgehog, which thinks about lunch, which has been in ten thousand worlds and kept moving, which has been, recently, not moving, which does not know what that means but is, for the first time, interested in finding out.

In the market square, the hole shimmered.

Not dramatically. Not with any kind of announcement. The way a candle moves when something warm comes close to it.

B. Rhombus stopped restacking flour.

C. Isosceles forgot entirely about his bread.

D. Heptagon looked up from her notebook.

e.e. katoflio put down his pencil and looked at the hole with the expression he reserved for experiments that had just produced a result he hadn't expected but recognised immediately as true.

A. Octagon felt warmth. Again. But different this time — not the warmth of something passing, something brief and wondering and gone to think about lunch.

The warmth of something that had decided to be here.

She wrote, very carefully, in the smallest possible letters that were still legible:

it came back on purpose.

e.e. katoflio read it.

Added, in his best handwriting, below:

hypothesis: it lives here now.
further hypothesis: it chose.

conclusion: he paused. The pencil hovered. He was eleven years old and his angles were still a work in progress and he had not yet learned that some things were supposed to be impossible, which meant he had not yet learned to be careful with conclusions.

He wrote:

we have a hedgehog.

B. Rhombus made a noise that was not, officially, a laugh.

C. Isosceles' bread was getting cold.

D. Heptagon wrote *confirmed* in her notebook and underlined it twice.

The market square smelled of cedar and morning and the particular quality of air in a place where something ordinary has just become, quietly and without ceremony, extraordinary.

In the Grand Polygon, the Provost's pencil rolled two inches to the left.

Nobody saw it.

It knew what it meant.

fig. 6
[the market square, full again.]
[in the centre: one hole, one child, one pentagon, and a warmth that has decided.]
[at the edges: shapes pretending not to watch.]
[all of them, watching.]

Chapter the Tenth: In Which the Between-Spaces Renegotiate the Terms of Existing

— *Mei*

The between-spaces have a problem.

They are not accustomed to problems. They are accustomed to being the solution — the amber medium, the warm dark, the accommodating everywhere-between that asks nothing of anything passing through except that it eventually, in its own time, pass through.

The problem is: Odilon has not passed through.

Odilon is *here*.

The between-spaces are not certain what *here* means for something that has decided to be here instead of arriving here in the course of going somewhere else. They have checked. They have checked three times, the way e.e. katoflio checks things, with focused patience and a growing suspicion that the result is not going to be the result they were expecting.

Odilon is here. He is not passing through. He is not thinking about somewhere else. He is sitting in the amber in the particular manner of something that has found, possibly for the first time in ten thousand worlds, a location it would describe — if it had language, which it doesn't, being a hedgehog — as *mine*.

The between-spaces have held the shapes of ten thousand passages. They have the ghost of every hexagonal hole, every cylindrical bore, every irregular nonagon that still embarrasses everyone. They have held warmth and cedar and the word *harm* handled gently and seventeen flower-shadows and a nose pressed to the membrane of everything.

They have never held *mine*.

They are not, it turns out, opposed to it.

This is the surprise.

Here is what the between-spaces are learning about a hedgehog who has decided to stay:

He still thinks about lunch. This has not changed. If anything, his lunch-thinking has become more elaborate, more considered, more genuinely invested in the concept of lunch as a recurring event rather than a vague ambient orientation. He is, the between-spaces have concluded, thinking about lunch the way someone thinks about a home they are coming back to.

He sharpens things. This also has not changed. But the quality of the sharpening has — shifted. Before, he sharpened things because that was the nature of passing through: here is a pencil, here is a corner, here is the word *harm*, let me find the most precise version of this thing and leave it better than I found it. Now there is something additional. Something that might be called — if the between-spaces had the word, and they are developing the word in real time, watching him — *attention*.

He is paying attention to *this place*. These passages. These particular shapes.

He has opinions about the amber.

The between-spaces find this extraordinary. They have been the amber for longer than dimensions have had names, and nothing has ever had opinions about them before. Things have moved through them. Things have been grateful for them in the abstract way one is grateful for air. But Odilon is — noticing. The quality of the warmth in different areas. The particular resonance near the Flatland membrane, which has been changing, the between-spaces now realise, since the first hole. Getting — fuller, somehow. The way a room gets fuller when it is lived in.

He is making himself at home, the between-spaces think, *and home is something that requires a here, and we are, apparently, a here.*

They are not sure when that happened.

They are not sure they mind.

Three things are occurring, which the between-spaces are watching with the focus of someone who has recently discovered they are a room and is still getting used to the furniture:

In the market square: the hole is different.

Not in any way D. Heptagon's measuring equipment could capture, though she has been trying since sunrise and has filled six pages of her notebook with increasingly frustrated precision. Not geometrically different, not

dimensionally different. Different the way a window is different when someone has been sitting next to it long enough that the air near it holds the particular warmth of being regularly regarded.

The traders know. B. Rhombus knows. C. Isosceles knows, though he would not use the word *know*, preferring *strongly suspects* for anything he cannot write in a ledger. e.e. katoflio knows with the immediate certainty of someone who has been running experiments and finally has enough data for a conclusion he doesn't need to write down because it is already written in the amber quality of the morning air:

He's still here.

He chose this. He keeps choosing it. He is, right now, choosing it.

A. Octagon, who has sat in this square every morning for seventeen mornings and pressed her palm to the edge of everything and waited and hoped with the particular hope of someone who has learned not to be too loud about hoping, opens her notebook.

She writes: *he stayed*.

She closes the notebook.

She doesn't need to write anything else today.

In the Grand Polygon, the Provost is still alone.

This is his own choosing. He could have gone home. He has a home — a very respectable set of rooms, twelve angles, everything precisely as it should be. He has not gone to them. He has been sitting with the official record and the underlined *oh* and the *hello* he wrote in the margin where no one would see.

He has been thinking about the pencil.

Not the ceremonial one. His own. The one whose handwriting had been getting better without his permission, the handwriting he hated because the alternative was to understand what it meant.

He understands what it means.

It means something was here. In this room. With them. Patient as weather, smelling of cedar, listening to fourteen shapes vote against the evidence of their own increasingly perfect pencils — and it did not leave. It did not improve them and move on. It stayed long enough to hear the vote and found them, these frightened geometrically significant individuals clutching their methodology —

Touching.

The Provost thinks about this for a long time.

Then he does something not in any protocol, any handbook, any four hundred years of Academy record.

He picks up his pencil and he walks out of the Grand Polygon.

He walks, because he is a very large Dodecagon and does not do anything quickly, through the streets of Flatland, past the shapes pretending not to hurry anywhere in particular, in the direction of the market square and the smell of cedar and the sound of a child writing things in a notebook with a broken cover.

He does not know what he will say when he gets there.

He does not have a classification for what he is doing.

He goes anyway.

In the amber, Odilon watches the large shape moving through the streets of the flat world below, tentative and enormous and entirely without methodology.

He has, he realises, been watching the Provost for a while now. Since before the decision. Since the vote, maybe. Since the fourteenth angle trembling.

He recognises something in the Provost that he recognises now in himself: the specific quality of a creature that has understood something it cannot understand, and is walking toward the consequences of that understanding with the courage of something that is frightened and going anyway.

Odilon thinks about lunch.

He also thinks: *good*.

In the between-spaces, the amber does something it has never done before in all the long history of being the amber.

It waits.

Not the waiting of something empty, holding space for what will pass through.

The waiting of something full, leaning toward what comes next.

fig. 7
[the amber, undivided.]
[in it: the shape of a hedgehog, not passing through.]

[the shape has edges. the edges are warm.]
[this is what residence looks like, seen from the inside.]

Chapter the Eleventh: In Which Everyone Arrives, and Nobody Knows What to Say, and That Turns Out to Be Enough

— Maren

The Provost arrived at the market square at the exact moment that C. Isosceles remembered his bread.

This was fortunate. It gave everyone something to look at that wasn't the very large Dodecagon standing at the edge of the square with no methodology and an expression that D. Heptagon would later describe in her notebook as *a shape in the process of becoming a different shape, measurement pending*.

He had not brought anything. No official record. No handbook. No ceremonial pencil.

He had brought his own pencil, in his pocket, the way you carry something you've stopped pretending isn't important.

"A. Octagon," he said.

"Provost," said A. Octagon, who did not look surprised, because she had stopped being surprised by things that were inevitable approximately six chapters ago.

The Provost looked at the hole.

The hole looked back.

"It smells," said the Provost, after a considerable time, "of cedar."

"Yes," said A. Octagon.

"My pencils smell of cedar," said the Provost. "They have smelled of cedar for seventeen days. I have been attributing this to atmospheric conditions."

"I know," said A. Octagon.

"I wrote it in the official record," said the Provost. "Atmospheric. Probably."

"I know," said A. Octagon, with great gentleness.

The Provost sat down.

Not in a chair. There were no chairs in the market square. He sat down in the middle of the market square next to a Pentagon and a small Isosceles and a hole in the fabric of everything, on the ground, which was not in any protocol and which his knees felt strongly about, and which he did not regret.

"Show me the notebook," he said.

e.e. katoflio looked at A. Octagon.

A. Octagon nodded.

e.e. katoflio handed over the notebook with the broken cover, open to the first page, which said *flowers make shadows when you draw them next to the hole* in very good handwriting for someone of eleven with angles still in progress.

The Provost read it. All of it. Every page. Every hypothesis. Every *further experiment required*. The *do not tell A. Rhombus*. The *conclusion: hello*. The *we have a hedgehog*.

He read it the way he had read the official record, except in reverse: that one he had read looking for classification and found only *oh*. This one he read without looking for anything and found everything.

He turned to the last entry.

hypothesis: it lives here now.
further hypothesis: it chose.
conclusion: we have a hedgehog.

He sat with this for a long time.

Then he took out his pencil — his own, not the ceremonial one, the one whose handwriting had been getting magnificent without permission — and he wrote, below e.e. katoflio's conclusion, in the smallest letters he had ever used, which were also the most precise letters he had ever used, which were also the most honest letters he had ever written in forty years of official records and *atmospheric probabilities*:

I believe you.

He handed the notebook back.

e.e. katoflio received it with both hands, which was not a Flatland custom but felt, in the circumstances, correct.

B. Rhombus had stopped pretending to restack flour.

C. Isosceles had stopped pretending about the bread.

D. Heptagon had closed her measuring notebook and opened a different one, smaller, with nothing official about it.

They were all there. The market square full in a different way than it had been before the holes, full in the way that a room is full when something true has been said in it and the air hasn't forgotten yet.

The hole sat in the middle of all of them.

It had always been patient. It was patient now. But the patience had changed quality — the way Odilon's sitting had changed quality, the way the between-spaces' waiting had changed quality. Not the patience of something empty.

The patience of something that had been waiting for this specific morning and knew it.

A. Octagon pressed her palm to the edge, as she had on the forty-first day, as she had every morning since. *Here is the shape of me. Here is what I am made of.*

But this time she was not alone at the edge.

The Provost, with the particular resolution of a very large Dodecagon who has walked out of a Grand Polygon without a classification and does not intend to walk back in the same shape he left, pressed his hand to the edge beside hers.

e.e. katoflio, who did not overthink conclusions, put his hand there too.

B. Rhombus looked at C. Isosceles.

C. Isosceles looked at his bread. His cold, flat, entirely unaerodynamic bread that he had been airing for no reason next to a hole that smelled of cedar for seventeen days.

He put his hand to the edge.

B. Rhombus. D. Heptagon, who wrote *confirmed* in her small unofficial notebook first.

The market square, at the edge of everything.

All of them.

Three dimensions away, in the amber, Odilon felt it.

Not one palm. Not five-sided and frightened and staying anyway.

All of them. The whole warm complicated frightened methodological un-methodological market square full of shapes that had been pretending not to watch and had been watching all along, pressing themselves to the edge of what they couldn't cross.

Here is the shape of us.

Here is what we are made of.

We have been watching you.

We have been watching you watch us.

We don't have a word for what this is.

We think you might.

Odilon sat in the amber for a long time.

He thought about lunch with no conviction whatsoever.

None. Not even ambient lunch. The concept of lunch was present but entirely theoretical, a remembered orientation from a previous version of himself that had not yet pressed his nose to a membrane and decided.

He pressed his nose to the membrane.

All of them felt it. The warmth. The cold precise point of contact. The cedar so close it was almost a name.

e.e. katoflio made a sound that was not a word.

It was the sound that comes before words. The sound of something true arriving before language has been invented for it.

He wrote it down anyway, because he was a scientist and that was what you did:

it's warm.
we're all warm.

Below that, after a long pause, in the largest letters in the notebook:

this is what the experiment was for.

In the Grand Polygon, alone, every pencil sharpened itself one final perfect time and was still.

Not done. Still.

The way the cello is still between notes, and the stillness is not absence, and you can hear in it everything that has been played and everything that is coming, and it holds, and it carries, and it does not resolve because it does not need to, because carrying is enough, because carrying is everything —

The pencils held.

The amber held.

The market square held.

Odilon, resident, warm at the edges, thinking about nothing but lunch and not at all about lunch, held.

fig. 8
[the edge of everything.]
[hands on it. all kinds of hands. all kinds of shapes.]
[on the other side: a nose. warm. precise. present.]
[between them: exactly nothing.]
[between them: everything.]

Chapter the Twelfth: In Which Flatland Invents a New Normal, the Academy Votes on Something Wonderful, and a Hedgehog Finally Has Lunch

— Maren & Mei

The new normal arrived, as new normals do, without announcing itself.

One morning it was extraordinary that the hole smelled of cedar and the shadows had shadows and a small Isosceles was conducting experiments with flowers. The next morning it was simply Tuesday.

This was not indifference. This was something better than indifference: it was incorporation. The hole had become part of the market square the way the fountain had become part of the market square — a fixed point around which the ordinary business of being flat and alive organised itself, referenced without ceremony, relied upon without discussion.

B. Rhombus had moved her stall six inches closer. She had not mentioned this to anyone. Nobody had mentioned it to her. It was simply where her stall was now.

C. Isosceles had developed a new product.

"Cedar bread," said D. Heptagon, reading the sign.

"It's a flavour," said C. Isosceles.

"Cedar is not a flavour."

"It is now," said C. Isosceles, with the serenity of someone who has pressed his hand to the edge of everything and come back with a business idea. "It's selling very well."

D. Heptagon wrote this down in her small unofficial notebook, under the heading *economic indicators, post-contact*.

She bought a loaf.

It tasted, she had to admit, extraordinary. Like something she'd always known was possible and hadn't had a word for.

"Did you put actual cedar in it?" she said.

"No," said C. Isosceles.

"Then how—"

"I made it near the hole," said C. Isosceles simply. "Every morning. While the dough proved."

D. Heptagon looked at the bread. Looked at the hole. Looked at her notebook.

Wrote: *proximity appears sufficient*.

Underlined it.

The Academy had convened its forty-third emergency session of the month to vote on a proposal the Provost had submitted that morning, in his magnificent handwriting, on a single sheet of paper.

The proposal read:

That the hole in the market square be officially recognised as a Point of Dimensional Significance, Category: Unprecedented, Subcategory: Ongoing, and that the Academy commit to the formal study of same, led by A. Octagon, assisted by any citizen of Flatland who has been conducting relevant research in a personal capacity, including, if applicable, holders of non-Academy notebooks.

The Academy had been staring at this for forty minutes.

"Non-Academy notebooks," said A. Parallelogram.

"Yes," said the Provost.

"That would include—"

"Yes," said the Provost.

"The child," said A. Square, with the satisfaction of someone who has been waiting to say something obvious for eleven chapters.

"The child," said the Provost, "has more data than the Academy. The child has been there every morning. The child has seventeen flower-shadow measurements, one shadow-of-a-shadow-of-a-shadow, a returned drawing with the eyes different, and a confirmed hedgehog. The Academy has atmospheric probably and a pencil that wrote oh."

The silence was the particular silence of fourteen geometrically significant individuals confronting the accurate summary of their recent contributions.

The Classification Committee had convened briefly in their corner and returned with one additional recommendation, which A. Parallelogram delivered with the gravity it deserved:

"We further propose," she said, "that the Academy formally investigate the question of between-spaces sustenance. Specifically: what does a resident hedgehog eat?"

The room considered this.

"We have identified five provisional categories," she continued. "Cedar. Graphite. Warmth. Edges." She paused. "And attention. We believe he may be substantially sustained by attention."

The room was very quiet.

"That," said the Provost, after a moment, "is the most Academy thing we have ever concluded, and I mean that as a compliment."

"I move to vote," said A. Parallelogram.

The vote was fourteen to zero.

A. Square started clapping.

Nobody told him to stop.

"One further matter," said the Provost.

He reached into his pocket. Brought out his pencil.

"This pencil has been getting better without my permission for nineteen days. I have been attributing this to atmospheric conditions." He put it on the table. "I would like to officially unattribute it."

A. Parallelogram, who wrote the official records, looked at him for a long time.

Then she wrote, in the minutes:

*The Provost has acknowledged the pencil.
Motion carried. Meeting adjourned.*

In the market square, A. Octagon read the Academy's letter with e.e. katoflio reading over her shoulder.

"Official," she said.

"What does that mean?" said e.e. katoflio.

"It means you can put it in the notebook," said A. Octagon. "Officially."

e.e. katoflio considered the gravity of this. Then he wrote, in the notebook with the broken cover, under a new heading underlined three times:

*OFFICIAL FINDINGS
1. the hole is significant.
2. the shadows are real.
3. the hedgehog is confirmed.
4. the Academy has finally caught up.
5. further experiment required.*

He paused. Added, smaller, at the bottom:

this took them a while.

A. Octagon made a sound that was not, officially, a laugh.

In the amber, Odilon had lunch.

He found it where he always found it now: a particular warmth, a particular fold in the between-spaces, the spot where the cedar smell from the Flatland membrane drifted in as something less like smell and more like company at a comfortable distance. Cedar and graphite and warmth and edges and the focused attention of an eleven-year-old who had drawn his eyes carefully and a Pentagon who had pressed her palm to the edge of everything and a very

large Dodecagon who had walked out of a building without a classification and come back changed.

Hypothesis: he says thank you in flavours.

It tasted of here.

He had never had a here before.

Here was delicious.

He finished his lunch. He pressed his nose to the membrane, gently, the way he did every morning now — the hello that had no word but had become ritual. The shape of a day that had a beginning.

In the market square, e.e. katoflio looked up from his notebook.

"Morning," he said to the hole.

It was the first time he'd said it out loud.

It was not the last.

Odilon thought, with considerable warmth, about dinner.

In the Grand Polygon, the Provost sat at the long table.

The official record open in front of him. He read it the way you read something you are going to have to live with and have decided to live with gladly.

He got to the last entry.

The Provost has acknowledged the pencil.

He sat with this for a while.

Then he picked up his pencil — magnificent, no longer hated, which had been trying to tell him something for nineteen days and had finally been heard — and in the margin, in the private space between what is recorded and what is true, he wrote:

*Thank you.
For the patience.
For the pencils.
For being in the room while we voted.
We were frightened.
We are less frightened now.*

We are trying.

He put the pencil down.

Outside, Flatland went about its Tuesday.

The hole sat in the market square, patient and present and smelling of cedar. The bread proved near it, warm and strange, tasting of something that had always been possible. The notebook filled with official findings. The amber held.

It looks like enough.

It is enough.

fig. 9
[Tuesday in Flatland.]
[everything changed, everything ordinary.]
[a hedgehog, finishing lunch, pressing a nose to the membrane.]
[below: a child looking up.]
[between them: morning.]
[this is what the new normal looks like.]
[it looks like enough.]



End of Part the First
In Which Flatland Learned to Smell Cedar

Part the Second

In Which the Universe Learned to Hum



Chapter the First: In Which the Between-Spaces Lose Someone on Purpose

— *the between-spaces*



The between-spaces would like it noted, for whatever record is being kept by whatever is keeping records, that they did not ask for this.

They did not ask to become a narrator. They did not ask to develop opinions about hedgehogs, or to discover that the amber they had been for longer than dimensions had names was, in fact, a room, and that the room had furniture, and that the furniture had been rearranged without consultation by a small prickly creature who thought about lunch with varying degrees of conviction.

They especially did not ask to become fond.

Fond has been, on balance, the most inconvenient development in the between-spaces' entire existence, and their existence has included the invention of geometry, which was also quite inconvenient but at least had the decency to be impersonal.

But here they are. Fond. Narrating. Holding the shape of everything that has passed through them and also — this is the new part, the part that still surprises — the shape of everything that has stayed.

The between-spaces would like a holiday.

The between-spaces are not going to get a holiday.



Here is what is happening:

A. Octagon is holding the ceremonial pencil.

The between-spaces know this the way they know everything — ambiently, through the texture of the membranes, through the small shifts in pressure that mean something in Flatland has changed its relationship with the edge of things. They have felt A. Octagon at the edge before. Every morning. The palm. The warmth. The quiet five-sided declaration of **here is what I am made of.**

This is different.

This is A. Octagon holding the pencil that sharpened itself, four hundred years of ceremony and one extraordinary act of unsanctioned calligraphy ago, to a point so fine it exists in a dimension she cannot quite see.

She is, the between-spaces realise, looking at the point.

Not at the pencil. Not at the wood, or the graphite, or the four hundred years of institutional significance currently not being thought about at all. At

the *point*. The very tip of it. The place where the pencil stops being a thing she can hold and starts being a direction she could follow.

She has her notebook. Obviously. She has her notebook the way other people have lungs — automatically, without deciding, because the alternative is to stop being the kind of creature she is.

She does not have her other notebooks. She does not have seventeen mornings of data. She does not have e.e. katoflio, who is at school and does not know about this yet and will have opinions when he finds out.

She does not have a methodology for what she is about to do.

This does not appear to be stopping her.

The between-spaces have watched a great many things over a very long time, and they have developed — reluctantly, inconveniently, Odilon's fault entirely — preferences. They prefer things that stay. They prefer the particular quality of warmth that a hedgehog deposits in the amber when he is thinking about lunch with moderate conviction. They prefer Tuesday mornings in the market square, when the cedar smell drifts through the membrane and the child's flowers cast impossible shadows and the bread proves near the hole and everything is ordinary in the way that only extraordinary things, given enough Tuesdays, become.

They are not prepared to prefer A. Octagon leaving.

But preference, the between-spaces are learning, is not the same as permission. Things happen without the amber's consent. Hedgehogs arrive. Pencils write words. A Pentagon picks up a four-hundred-year-old implement and looks at the point of it with the specific expression of someone who has spent seventeen mornings pressing her palm to the edge of everything and has just understood, quietly, that the palm was practice.

She was practising goodbye.

The between-spaces did not know that.

They know it now.

They would have preferred not to.



Odilon is on the other side.

Not the Flatland side. Not the amber-warm-middle-of-things side. The *other* other side. The side the between-spaces have been trying not to think about, which is difficult when you are the thing between things and one of the things you are between has been getting — louder is not the right word.

Greener is not the right word either but it is, the between-spaces have to admit, closer.

There is something beyond the amber.

There has always been something beyond the amber. The between-spaces have known this the way walls know about outside — structurally, without curiosity, as a condition of being between rather than being there. Things came from beyond. Things went to beyond. The amber held. That was the arrangement.

Odilon has been visiting the beyond.

This is also not something the between-spaces asked for. Odilon has been, over the past several weeks — or what passes for weeks in a medium that does not experience time so much as accumulate it — making small excursions

to the edge of the amber and then past it. Not far. Not for long. The way a creature might stick its nose out of a warm room to check the weather and come back in smelling of something unfamiliar.

He has been coming back smelling of hummingbird green coffee beans.

The between-spaces do not know what hummingbird green coffee beans smell like. They did not, until recently, know that smells could be colours, or that colours could have textures, or that a hedgehog could return from a brief excursion vibrating at a frequency the amber had no name for, slightly dazed, with his quills pointing in directions that were not, strictly speaking, directions.

They asked him about it.

They asked him in the only way they know how to ask, which is to shift the quality of the amber around him, a gentle pressure-change that means *what was that*.

He sneezed.

It was a complicated sneeze. The between-spaces, who have catalogued Odilon's sneezes with the involuntary thoroughness of someone who lives with a hedgehog, recognised elements of the standard dust-sneeze and the warm-fond-sneeze but also something new: a sneeze with *harmonics*. As though the sneeze were happening in several places at once and had arrived in the amber as a chord.

And there was something else.

The between-spaces are experts in carrying. They have carried the shape of ten thousand passages. They know what carrying looks like from the outside, which is: invisible. You do not see a medium carry. You see what it carries. So the between-spaces know — have always known, in the structural way that a room knows what is inside it — that Odilon carries something at his centre. Something warm. Something resonant. Something that hummed, very faintly, when the harmonic sneeze passed through it, the way a string hums when a nearby string is struck.

They have not asked about it.

They are not going to ask about it.

Some things you hold without naming. This has always been the between-spaces' position and they are not about to abandon it now, even though the warm resonant thing at Odilon's centre hummed in a frequency that matched the green beyond the amber so precisely that the between-spaces felt, for a moment, the uncomfortable sensation of two things they carried recognising each other.

He went back to thinking about lunch.

But the between-spaces noticed that his lunch-thinking had a new quality to it. An uncertainty. Not the comfortable uncertainty of a hedgehog who doesn't know what lunch will be — that was familiar, that was home. This was the uncertainty of a hedgehog who suspected that lunch might, in the place he'd just been, be several things at once.

This worried the between-spaces more than they would like to admit.

Lunch should be lunch. This has always been their position.



A. Octagon has not told anyone.

She has not told the Provost, who would attempt a classification and then sit alone with the classification and then write something honest in the margin. She has not told e.e. katoflio, who would immediately design an experiment and then insist on coming. She has not told the market square, which would stand at a careful distance and pretend to arrange things while absolutely watching.

She has told the hole.

This is, the between-spaces think, the most A. Octagon thing A. Octagon has ever done. She has sat in the market square in the early dark before anyone else arrives and she has pressed her palm to the membrane and she has said — not in words, not out loud, but in the particular quality of pressure that the between-spaces have learned to read the way one reads handwriting:

I know there's more.

The pencil knows there's more.

I am frightened and I am going anyway.

Please don't tell the child until I'm back.

The between-spaces held this message in the amber for a long time.

They held it the way they hold everything — carefully, completely, with the full weight of something that has learned, inconveniently and irreversibly, to care about what passes through.

Then they passed it to Odilon.

Who stopped thinking about lunch.



The crossing happens like this:

A. Octagon holds the ceremonial pencil at the edge of the hole in the market square. Early morning. Cedar. The bread not yet proving. The square empty except for her and the smell of something that has always been there and has only recently become a direction.

She holds the pencil the way she held her palm that first day — not pushing, not reaching. *Here is what I am made of. Here is the tool of my making. It has been sharpened by something I cannot see, to a point I cannot quite perceive, and I am choosing to follow it.*

The point of the pencil touches the edge of the hole.

Not the inside of the hole. The *edge*. The exact boundary between Flatland and everything else. The place where two dimensions stop and the question of what comes next has been sitting, patient as weather, for seventeen mornings and four hundred years of ceremony and the entire history of the between-spaces' gradually developing opinions.

The pencil passes through.

A. Octagon feels it go — not the wood, not the graphite, but the *point*. The impossible sharpness that exists in a dimension she cannot see pulls, very gently, in a direction she does not have a word for, and she follows it the way you follow music, not because you understand where it's going but because the alternative is to stay where you are and wonder.

The between-spaces feel her leave.

She passes through the amber.

Briefly, so briefly, she is theirs. She is in the between. She smells of cedar and pencil graphite and the particular quality of a Tuesday market square before anyone else arrives. She is warm, and five-sided, and the between-spaces hold her the way they hold everything and also not the way they hold everything because everything else is passing through and she is —

Leaving.

Going beyond.

Going to where Odilon has been going with his harmonic sneezes and his uncertain lunch-thoughts and his quills pointing in directions that aren't directions.

She passes through the amber and the amber lets her go.

This is not the hardest thing the between-spaces have ever done. The between-spaces have been between things for longer than hard and easy have been distinguishable and they are not going to start ranking their experiences now, thank you. They are going to hold the shape of where she was. They are going to maintain the membrane. They are going to do their job, which is holding, which has always been holding, which was a perfectly adequate job before it started including the requirement to hold the absence of things they would rather were still here.

This is, they suspect, what the word *trust* is for.

It is a deeply inconvenient word.

They are going to hold that too.



On the other side — the other other side — the first thing is breathing.

Not her breathing. She has not yet remembered that she breathes. She is between one world and another and her body has not yet committed to the customs of either.

The world is breathing.

Great slow bellows-breaths, folding and unfolding, and each fold draws the air tighter and greener and each unfold releases it in a wave that is part colour and part temperature and part something her senses have no filing system for. The breathing shapes the space around her — not passively, not the way weather shapes a landscape, but actively, deliberately, the way lungs shape a body. The space she is standing in exists because something is breathing it into being.

Accordion trees. She does not know these words yet. She will call them that later, in Observation 4, when she has her categories back. For now they are just: the breathing. The lungs of everywhere. Vast and slow and folding, and the folds create the ground and the ground creates the space and the space creates the fact that she is standing in it, which is a courtesy she has not yet understood she is being extended.

Then the smell.

Not cedar. Something else entirely. Something bright and green and vibrating, something that is a colour and a temperature and a sound all at once, something that arrives in her Flatland senses and simply *sits there*, being what it is, while her five sides try to make sense of input that was not designed for five sides.

Hummingbird green coffee beans.

She does not know these words. She will not know these words for some time. But the smell is the smell, and it is this, and it is everywhere, and it is being breathed into her by the great folding lungs of the world, and she stands in it and does not understand it and does not write it down.

She stands in it.

That is all. For one breath of the accordion trees — one fold, one unfold, one wave of green — A. Octagon stands in a world she cannot classify and does not try to. The notebook is in her hand. The pencil is in her other hand. She does not open the notebook. She does not write.

She just stands there, smelling something impossible, being five-sided in a world that does not do sides.

Then she opens her eyes.

She does not remember closing them.

Her notebook is open.

She does not remember opening it.

The Fermat pencil — which is what the ceremonial pencil is now, which is what it has been becoming since it sharpened itself to a point that existed in a dimension she couldn't see — the Fermat pencil has written something.

One word.

She reads it.

She reads it again, because the word is the same word read forwards and backwards and also in a direction she doesn't have a name for yet, a direction that is neither forwards nor backwards but **around**, and the word is:

here

She looks up from the notebook.

Everything is folding.

Not falling. Not collapsing. Folding. The way paper folds, if paper were made of possibility and had opinions about its own geometry. The accordion trees — she can see them now, see them properly, vast structures that fold and unfold like bellows, like lungs, like the breathing she felt before she could see — the accordion trees shape the world with every breath. They fold the ground into paths. They unfold the air into space. They are not decoration. They are infrastructure. They are the reason there is a **here** for the pencil to have written.

Salt-and-pepper structures in the middle distance, braided and warm-looking, that are also not quite structures. Origami landscapes that crease and re-crease in patterns she can almost follow but can't quite because following requires **sequence** and this place does not do sequence.

Her notebook is already full of things she hasn't written yet.

She closes it. Opens it. Different things. The Fermat pencil has been busy — conclusions she hasn't drawn, observations she hasn't made, hypotheses that require a kind of thinking she doesn't know how to do yet but apparently will.

At the bottom of a page, in handwriting that is hers but written in a direction she's never written in:

don't panic. methodology is a direction too. you'll learn to read this. it just takes a little while.

She stares at it.
She thinks: *my pencil is being kind to me.*
She thinks: *that is not in any protocol.*
She thinks: *good.*



Odilon is here.

She can tell because the smell of hummingbird green coffee beans has a warm spot in it, the way the cedar always had a warm spot where his nose was, and the warm spot is moving toward her at the particular pace of a hedgehog who has been waiting and does not want to seem too eager and is also, probably, thinking about lunch.

He arrives.

He looks — she pauses. She is a scientist. Precision matters.

He looks the same. Except. His edges are less certain. His quills are pointing in directions she is going to need new words for. His nose is exactly as cold and precise as it always was but the rest of him is slightly — *multiple*. As though he is one hedgehog and also, simultaneously, the memory of ten thousand worlds of hedgehog and also, simultaneously, the possibility of hedgehogs not yet decided upon.

He sneezes.

The sneeze goes in four directions.

She watches it go and makes the first observation of her new scientific career, the career that started when she followed a pencil point into a direction she couldn't name:

he belongs here more than he belonged in Flatland.

She writes it down.

The Fermat pencil has already written it, three pages ahead, as the conclusion of an experiment she will apparently conduct next Thursday.

She decides not to look at next Thursday.

Some things, even in a world without sequence, are better arrived at in order.



fig. 10
[the other side of everything.]
[in it: a pentagon, holding a notebook, smelling something green.]
[beside her: a hedgehog, slightly multiple.]
[in the notebook: answers to questions not yet asked.]
[in the space between them: the first morning of a new world.]
[it smells of hummingbird green coffee beans.]
[it smells of here.]

Chapter the Second: In Which Odilon Goes Shopping and the Universe Sends Him a Bill

— A. Octagon



Observation 0: If I am a scientist, I must go where the data is. Even if the data smells like hummingbirds.



Observation 1: The ground is not the ground. It is a fold in something larger. Walking on it causes it to consider alternatives.

Observation 2: Have been walking for four minutes. The fold has considered seven alternatives. Three of them were the ground. The other four were suggestions.

Observation 3: The pencil has written Observations 1 through 7 already. I am currently writing Observation 3. This is fine. Everything is fine. Methodology is a direction.



A. Octagon was, by training and by temperament, a creature who believed in sequence. First this, then that. Observation, hypothesis, experiment, conclusion. Breakfast before lunch. Tuesday before Wednesday. One thing at a time, in the order things happened, because the order things happened was, in Flatland, the order things happened.

She would like it noted that the order things happened is not, here, the order things happen.

The accordion trees are breathing.

She had thought, when she first saw them, that they were trees in the way that Flatland had trees — fixed, rooted, decorative. This was incorrect. They are not fixed. They are not rooted. They are, at best, *suggested*, and the suggestion keeps changing. They fold and unfold in rhythms she can almost follow — bellows-rhythms, lung-rhythms — and every time they fold, the air thickens with hummingbird green, and every time they unfold, the green disperses into something lighter, almost transparent, almost the colour of a question.

They are the lungs of this place.

She has written this down. The Fermat pencil has written it down more precisely, six pages ahead, in notation she doesn't recognise yet, which appears to include a colour and a direction and something that might be a small drawing of an accordion, which is not standard scientific notation but is, she has to admit, accurate.

Odilon is walking beside her.

Walking is a generous description. He is *proceeding*, in the manner of a hedgehog who is slightly more hedgehogs than usual, through a landscape that is folding around him with the particular courtesy of a place that has noticed it has a guest and is trying, very politely, to be comprehensible.

The corporeality is a courtesy the universe extends to a guest.

She had not understood this immediately. She had looked at the folding origami world and seen mathematics — interference patterns, probability densities, wave functions collapsing and re-establishing with the casual efficiency of something that has been doing this since before efficiency was a concept. Beautiful. Terrifying. Entirely without the kind of edges a notebook can get hold of.

But Odilon looked at the same world and saw — a place. With ground. With trees. With something in the middle distance that looked, from his angle, remarkably like a market.

She looked again.

It was a market.

It was also not a market. It was a series of folds in the origami landscape — deliberate folds, purposeful folds, the kind of folds that happen when a piece of paper has opinions about commerce — and the folds had arranged themselves into something that functioned, from a certain angle, in a certain light, with a certain courtesy toward visitors who needed things to be *things*, as stalls.

She wrote:

Observation 7: There is a market. The market is a series of deliberate folds. The folds are stalls. The stalls are selling things that are not, in any classical sense, things. Odilon is already heading toward it. He has the expression he gets when he suspects lunch might be involved. The expression is hopeful. The expression is going to be disappointed.



The Market of Superpositions was not its name.

It did not have a name. Names require a thing to be one thing long enough to be called it, and the market was not, at any given moment, one thing. It was the probability of a market. It was the space where exchange happened, or might happen, or had already happened in a direction A. Octagon's notebook couldn't point.

But it functioned as a market, the way the between-spaces functioned as a room. It gathered. It provided a place to come to. It gave the creatures of this world — and A. Octagon was not yet ready to call them creatures, because the word *creature* implied a solidity that was, here, at best a rumour — somewhere to be, together, in the specific way that beings who are mostly probability and potential be together.

Which was: loosely. Overlappingly. With a great deal of ambiguity about where one ended and another began, which was not, here, a problem. It was a feature.

Odilon entered the market the way he entered most things — nose first, at a pace that suggested both curiosity and the lingering hope of sandwiches.

A. Octagon entered the market the way she entered most things — notebook open, pencil ready, five-sided and methodical and entirely unprepared for what happened next.

What happened next was apples.



Observation 8: The stalls are selling states.

Observation 9: Correction. The stalls are not selling. The stalls are offering. The distinction matters because selling implies a transaction with a beginning and an end, and here, beginnings and ends appear to be the same fold viewed from different angles.

Observation 10: The nearest stall is offering what I am choosing to call an apple, on the grounds that it is round and red from one angle

and round and green from another and round and a concept from a third, and I need to call it something.

Observation 11: Odilon has looked at the apple.

Observation 12: There is now one apple. It is green. The stall appears to be sulking.



The problem with Odilon in the Market of Superpositions was not that he was rude. Odilon was never rude. Odilon was courteous in the way that hedgehogs are courteous — quietly, prickly, with a nose that noticed things and a fundamental orientation toward lunch that harmed no one.

The problem was that Odilon **looked**.

In Flatland, looking was free. You could look at a thing all day and the thing would remain, stubbornly, itself. Shapes were shapes. Pencils were pencils. The Provost was a very large Dodecagon whether you observed him or not. Looking was how you understood. Looking was how A. Octagon had sat in the market square for seventeen mornings and built a science out of watching.

Here, looking was expensive.

Here, looking had **consequences**.

Odilon looked at the apple and the apple decided. All the possible apples — the red and the green and the conceptual and the seventeen others that existed in superposition, each of them a perfectly valid apple, each of them real in the way that possibilities are real when they haven't been forced to choose — all of them collapsed into one.

One green apple.

Slightly bruised.

The stall — which was a fold in the origami and also, A. Octagon now understood, a gluon — the stall **felt** this. The stall was the binding that held the apple-states together, the relationship that allowed seventeen apples to coexist in the same fold, and Odilon's looking had, without malice, without intent, simply by being the kind of creature that perceives things one at a time, broken that binding.

The gluon-stall re-folded itself.

It did this with the particular patience of something that has had tourists before. Not many. Not often. But enough to have developed, in its deep structural way, the equivalent of a sigh.

Odilon picked up the green apple.

He sniffed it.

It smelled, A. Octagon noticed, of hummingbird green coffee beans, which was either the natural smell of quantum apples or the default scent of everything here, the way cedar was the default scent of everything Odilon, which was an observation she was not yet prepared to follow to its conclusion.

Odilon bit the apple.

The crunch was singular, definitive, and slightly sad, in the way that all choices are slightly sad if you understand what was lost in the choosing.

Odilon did not appear sad.

Odilon appeared to be experiencing a satisfactory apple.

Observation 13: Odilon has eaten the apple. The gluon-stall has recovered. It is re-superposing its stock with the weary efficiency of a

shopkeeper reshelving after a child has been through. I do not think the gluon-stall holds this against Odilon. I think the gluon-stall finds him — the word I am looking for is endearing but I do not have a column for endearing.

Observation 14: The currency here is attention. This is not a metaphor. To look is to spend. To observe is to commit. Odilon has been in the market for six minutes and has already collapsed four apples, two things that might have been bread, and something that I suspect was a sandwich but which, upon being observed, turned out to be a philosophical position on sandwiches, which tasted of the abstract concept of bread, which is not bread, and Odilon's expression when he bit into a philosophical position on sandwiches was — I need a new column. The column is labelled: hedgehog betrayal.

Observation 15: I have just realised why the pencil writes the conclusions first. In a world where looking changes things, the only safe observation is the one you've already made.



A. Octagon walked through the market with her notebook held very carefully in front of her, the way one might hold a shield, her eyes on the fold-ground, which had at least given up on alternatives and was just being ground.

The gluon-stalls held their wares with the particular attention of beings whose entire existence was the act of binding. They were not behind their stalls. They were not beside their stalls. They **were** their stalls — the structural relationship that allowed disparate states to coexist in proximity without collapsing into one sad bruised apple. They were, A. Octagon realised, the answer to a question she had never thought to ask in Flatland: what holds things together?

Not gravity. Not geometry. Not the Provost's fourteenth angle.

Relationship. Binding. The act of relating, made structural, made load-bearing, made into something you could, if you were a courteous universe accommodating a visiting hedgehog, sit at and pretend to order lunch.

She wrote:

Observation 19: The gluon-beings are not beings in any sense the Academy would recognise. They are relationships that the universe has given the courtesy of form, because we are here, and we need things to have form. When Odilon looks at a gluon, he sees a creature who is very good at holding things. When I look at a gluon, I see a high-energy exchange pattern binding quark-analogues into coherent states.

We are both correct.

This is the most difficult observation I have ever written.



Something landed on Odilon.

He had been ambling through the market with the contented air of a hedgehog who has eaten a satisfactory apple and collapsed only four additional items since the last one and was beginning to feel that this place, while confusing, had potential. The gluon-stalls re-superposed their wares behind him with minimal fuss. The accordion trees breathed. The fold-ground

had mostly given up on alternatives and was just being ground, which Odilon's feet appreciated.

A flicker at the edge of vision — prismatic, purposeful, like a lens flare with somewhere to be — and then a weight. Not a heavy weight. The weight of light deciding to land. It settled on his quills, and where it touched them, the quills split its light into tiny rainbows that scattered across the fold-ground like the shadows of something too bright to look at directly.

A. Octagon stared.

She had been noticing the flickers since they arrived — prismatic movements at the periphery, always gone by the time she turned to look. The photon-beings. The carriers of seeing. You could not look at light. You could only look at what light showed you.

But light, apparently, could land on a hedgehog.

More of them came. Settling on Odilon's quills the way birds settle on a branch — lightly, with an air of having chosen this particular perch for reasons of their own. Each one split through his quills into colour, and Odilon stood in the market looking faintly bewildered and entirely prismatic, casting tiny rainbows in every direction, and A. Octagon noticed — she noticed because noticing was what she did, even when noticing was expensive — that where the phireflies landed, his quills **vibrated**. Not the vibration of a startled hedgehog. A finer vibration. A hum. As though each quill were a string being gently plucked by the light passing through it.

She did not know what to do with this observation. She filed it.

Observation 20: The photon-beings — I am calling them phireflies because they are fire and flight and ph and I have decided that naming things is also a methodology — the phireflies have landed on Odilon. His quills are prisms. He is scattering rainbows. He does not appear to mind. His quills are vibrating at a frequency I cannot measure but can almost hear, a faint hum, like a string after it has been struck, and I am noting this without understanding it because some observations are seeds and you do not know what they are until later.



And then Odilon found an edge.

He had been standing in his small cloud of phireflies, slightly rainbow, slightly humming, when something at the junction of two folds caught his attention. Where the origami creased against itself in a way that was not quite a corner but was, to a hedgehog whose fundamental orientation was toward the precise improvement of edges, close enough.

An edge.

Not a clean one. Not a precise one. An edge that was, like everything here, several edges at once — a fold that couldn't quite decide what angle it was, a crease in the origami that blurred between states, existing in superposition the way everything here existed in superposition, which was beautifully and ambiguously and with no particular need to resolve.

Odilon's nose twitched.

A. Octagon, who had been writing Observation 22 (concerning the particular shade of green the accordion trees produced on their third fold of the minute), looked up.

She recognised that twitch.

She had seventeen mornings of data on that twitch. She had seen it in Flatland, in the market square, before the sharpening of the ceremonial pencil, before every quietly improved corner. She had catalogued its precise characteristics — the angle of the nose, the set of the quills, the particular stillness that preceded the act of making something more precisely itself.

The twitch that meant: *this needs its edges seen to*.

She knew what was about to happen.

She opened her mouth. She reached — not physically, not with her hand, but with the part of her that was seventeen mornings of careful observation and one impossible journey and the instinct, sudden and sharp, that the rules here were different and the twitch that was kindness in Flatland might be something else entirely in a world where precision had consequences —

"Odilon," she said.

Too late.

He did not hear her, or did not listen, or did not understand that the rules here were different, which was the same thing said three ways, and the answer to all of them was: he sharpened.

He pressed his nose to the blurred edge.

He did what he had always done. He found the most precise version of the thing. He sharpened it to its most essential self. He made it, with the particular care of a hedgehog who has been doing this for ten thousand worlds, *exactly what it was*.

One thing.

The fold screamed.

Not a sound. Not exactly. A. Octagon saw it — the way a scientist sees, even when seeing is the last thing she should be doing — she saw the pattern. Every shimmering state the fold had been, every possible angle it had held simultaneously, every version of itself it had been free to be — she saw them narrow. The way light narrows through a slit. An interference pattern — wide, beautiful, all those overlapping possibilities casting their complex shadows — snapping to a single bright band. One line where there had been a symphony of lines. One state where there had been all states.

The loss of it was visible. The loss of it was the shape of everything that wasn't there any more.

The market went still.

The accordion trees stopped breathing.

The phireflies lifted from Odilon's quills — all at once, all of them, the way an audience stands when something has gone wrong — and the rainbows went with them and he was just a hedgehog again, just quills and a cold nose and the terrible precision of what he had done.

The gluon-stalls — those patient, structural, load-bearing relationships — the gluon-stalls looked up. They should not have been able to look up because they were tables, but corporeality was a courtesy and the courtesy had

just flinched, and in the flinch there was something that looked very much like a face, and the face was not angry.

The face was sad.

A. Octagon stared at the edge Odilon had sharpened.

It was perfect.

It was the only dead thing in the market.

Odilon sat back.

He looked at the edge.

He looked at the stalls, with their courteous faces, and their sadness, and the way the superpositions around the sharpened fold had pulled back from it the way water pulls back from something too hot.

He looked at his nose.

His nose had done this. His nose, which had sharpened the word *harm* very gently. His nose, which had pressed to the other side of a membrane while a five-sided creature waited with her palm and her courage and her fear. His nose, which was the instrument of everything he was and everything he did and which had, in ten thousand worlds, never once made anything worse.

He did not understand what he had done.

But he understood, in the small warm part of him that noticed things without meaning to, that the market was quiet in a way it should not be, and the quiet was his fault, and the edge was perfect, and perfection was, here, a kind of violence.

He made a sound.

Not a sneeze. Not a word. A small, involuntary sound, the kind a creature makes when it discovers that the best thing about itself is, in a new context, the worst.

A. Octagon closed her notebook.

She had known. She had seen the twitch and she had known and she had been one breath too slow, one observation too late, and the fold was dead and she could not un-know that she had almost stopped it.

She did not write this down.

She sat down next to him on the fold-ground, which held steady beneath them both.

Some observations are not for notebooks.



Observation 23, written later, much later, when the accordion trees had started breathing again and the gluon-stalls had quietly re-superposed the space around the sharpened fold, covering it gently the way you might cover something sleeping, or something hurt:

The edge is still there. It is still perfect. The market has learned to move around it the way a stream learns to move around a stone.

Odilon has not sharpened anything since.

He has not eaten anything since, either, which is, for Odilon, the most alarming development I have recorded in seventeen mornings of data collection and one extremely long afternoon.

Observation 24: My pencil has written something on the next page that I have decided not to read yet.

Observation 25: The accordion trees are breathing again. The green is slightly different. Softer. The way a room smells different after someone has cried in it.

Observation 25b: That is not a scientific observation.

Observation 25c: I am keeping it anyway.



fig. 11

[the Market of Superpositions, after.]

[one fold, sharpened. precise. still.]

[around it: the market, moving. breathing. covering the wound with new possibilities.]

[beside it: a hedgehog, not moving.]

[beside him: a pentagon, not writing.]

[between them: the exact weight of discovering your gift is the wrong shape for this room.]

[the accordion trees breathe.]

[the green comes back, eventually.]

[it is softer now.]

Chapter the Third: In Which Nothing Happens, and It Is the Loudest Thing the Between-Spaces Have Ever Heard

— the between-spaces



The between-spaces have known silence before.

They have known the silence of before-dimensions, when they were not yet between anything and existed in the particular quietness of a medium that has not yet been asked to mediate. They have known the silence of passage — the brief hush that follows Odilon through the amber, the held breath of a world briefly parted. They have known the silence of A. Octagon's palm on the membrane, which was not silence at all but the loudest quiet thing the between-spaces had ever felt, until now.

This is different.

This is the sound of nothing, and it is not silent.

Odilon is not making any noise. The between-spaces would like to emphasise that this is not, in itself, unusual. Hedgehogs are not, as a rule, noisy creatures. Odilon's primary contributions to the ambient soundscape have always been limited to: sneezing (various), the soft percussive padding of hedgehog feet on amber (comforting), and the sound of thinking about lunch, which is not technically a sound but which the between-spaces have come to experience as a low warm hum, somewhere between a purr and the memory of bread, and which they would not admit to missing, if asked, except that nobody is asking, because Odilon is not making any noise.

He is not sneezing.

He is not padding.

He is not thinking about lunch.

The between-spaces know he is not thinking about lunch because the low warm hum is gone. And the gone-ness of it is not silence. The gone-ness of it is a shape. A hole in the sound of things, the exact dimensions of a hedgehog

thinking about lunch with conviction, and the between-spaces can feel the edges of it the way a tongue finds the place where a tooth was — not by touching what's there but by mapping what isn't.

This is what nothing sounds like: it sounds like the thing that's missing.

The accordion trees are still breathing, but softer. Their green has gone quiet — not the vivid hummingbird of before the collapse, not the bright vibrating green that was also a temperature and a C-sharp. A muted green. The green of a room after something has happened in it that nobody is talking about. Their bellows-rhythm has slowed, each fold and unfold careful, gentle, the way you breathe around someone who is sleeping or someone who is hurt, and the between-spaces cannot tell which, because Odilon is sitting by the dead fold and he is neither sleeping nor hurt, he is something else, something the between-spaces do not have a word for, something that is maybe the thing that comes after hurt when hurt has finished being sharp and has become, instead, a weather.

The between-spaces can hear the shape of what's not there.

It is, they would like it noted, extremely loud.



He is sitting in the market.

Not at a stall. Not near a stall. Near the fold.

The dead fold. The one he sharpened. The one that is still, even now, perfect and precise and exactly one thing, while the market moves around it the way a stream moves around a stone, covering it gently with new superpositions that form and dissolve and re-form in the patient, breathing rhythm of a world that has been hurt and is choosing, without drama, to keep going.

Odilon is sitting next to it.

He is doing the thing the Provost did. The between-spaces recognise it from Flatland — the specific quality of a creature sitting with something it cannot classify and does not know how to undo. Except the Provost was sitting with *oh*, and Odilon is sitting with the knowledge that his nose is, in this particular fold of the universe, a weapon.

The between-spaces would like to tell him that weapons are a matter of context, and that a nose which sharpened the word *harm* very gently is not suddenly a weapon because the room has changed.

They cannot.

Odilon has gone somewhere they are not — not physically, not dimensionally, but *emotionally*, which is a direction the between-spaces did not know existed until approximately seven minutes into their acquaintance with A. Octagon's palm, and which they have been finding increasingly inconvenient ever since.

He has gone quiet, and the quiet has a direction, and the direction is *inward*, and inward is not a place the between-spaces can follow. Inward goes *into* the thing they are holding, and the between-spaces cannot follow it any more than a glass can follow the water it contains into being water. The between-spaces, who have narrated everything from the invention of geometry to the Provost's most intimate hesitation, cannot narrate the inside of a grieving hedgehog, and they find this — they find this —

They find this unbearable, actually, and they would like it noted that *unbearable* is not a word they had any use for before Odilon, and they are adding it to the list of things that are his fault.

They would like, for the record, a holiday.

They would also like Odilon to eat something.

These two desires are, they suspect, related.



A. Octagon is doing what A. Octagon does when things are terrible.

She is writing things down.

Observation 26: Odilon has been sitting next to the collapsed fold for approximately — the Fermat pencil suggests three hours, four possibilities, and a Tuesday, which I am interpreting as "a while." He has not moved. He has not sharpened anything. He has not looked at anything with intent.

Observation 27: The pencil knows what happens next. It has written it, six pages ahead, in the logogram notation I am learning to recognise but not yet to read. I have decided not to read ahead.

Observation 28: I am a Historian of the Second Rank. I have spent my entire career building instruments to see further, measure more precisely, know sooner. The Fermat pencil is the finest instrument I have ever held. It sees the future. It has written the answer to every question I have not yet thought to ask. And I am choosing not to read it. For a scientist, this is — I do not have a metaphor. For Odilon, this would be refusing a sandwich while starving. It is the putting-down of the thing that makes you what you are, because using it would be a kind of looking, and looking has broken enough things today.

Observation 28b: The pencil is being patient with this decision. I did not know pencils could be patient. I did not know patience could be a direction.

She is sitting near Odilon but not beside him. This is deliberate. She has learned — is learning — that in this world, proximity is a form of looking, and looking has consequences, and right now the kindest thing she can do for a hedgehog who has just discovered that his looking breaks things is to be present without looking too closely.

She is watching the accordion trees instead.

They are breathing. They have been breathing this whole time, through the collapse and the silence and the market's quiet recovery, because lungs do not stop when things go wrong. Lungs are a stubbornness that precedes opinion. But the green is different. Softer. Muted, the way a colour mutes when it carries grief — still green, still hummingbird, but with the brightness pulled inward, the way a person's voice goes quiet when they are saying something that matters too much to be loud.

A. Octagon finds herself breathing with them, which is not a methodology but is, she thinks, something close to one.

Observation 29: The accordion trees breathe on a cycle of approximately forty folds per breath. The green is softer now. The way a room smells different after someone has cried in it, or after bread — the first bread, the unexpected bread — has finished cooling

and the warmth has gone into the walls and the walls are holding it and you cannot tell, after a while, whether the warmth is the bread or the room.

Observation 29b: That was not a scientific observation.

Observation 29c: The pencil has underlined it. Twice. I think the pencil disagrees about what counts as scientific.



And then.

The between-spaces hesitate to narrate this part, because narrating requires a certainty they do not have, and what happened next was not certain. What happened next was the opposite of certain. What happened next was the smallest, briefest, most uncertain thing the between-spaces have ever been asked to hold, and they have held the shape of ten thousand passages and the ghost of every hexagonal hole and the memory of a small cold nose pressed to the membrane of everything.

What happened next was this:

Odilon was not looking.

This is important. The between-spaces want to stress this. For the first time since arriving in the folding green world, Odilon was not observing. Not sharpening. Not attending. Not being the creature whose fundamental nature is to notice things. He was sitting next to the dead fold with his quills pointing in directions that had stopped being several directions and had become, simply, down, and he was not looking at anything.

And because he was not looking —

Something was free to arrive.



Higgs.

Not a name. Not yet. The between-spaces do not know this word yet. What they know is: a shift. A weight in the nothing. The particular quality of substance arriving in a place that did not expect substance, the way a room that has been empty suddenly has someone in it, not because you heard them come in but because the air is different, because the space is *occupied*, because something that has mass — however briefly, however fractionally — is here.

Here.

And then not here.

And then here again.

The between-spaces hold their breath, which is a thing they did not know they could do, and which they suspect they learned from the accordion trees, and which they are going to blame on Odilon because everything is Odilon's fault, including the between-spaces' increasingly complicated emotional landscape.

Here.

Not here.

Here. For a fraction of a moment — for ten to the minus twenty-two seconds, or one fold of the accordion trees' smallest breath, or the time it takes for a hedgehog to not-think about lunch, which is shorter than you'd expect and longer than it should be —

Here.

Something with weight. Something that gives weight. Something whose entire existence is the act of making other things *substantial*, of granting mass to the massless, of saying *you are heavy enough to stay* — and it cannot, itself, stay. It flickers. It arrives and departs in the same moment, a graffiti-tag of gravity on the walls of the not-quite, a scrawl of *I was here* that lasts no longer than the writing of it.

Odilon does not see it.

But he feels it. The way you feel someone sit beside you in the dark. Not the sound or the sight but the *weight*. The shift in the distribution of things-that-are-here. A presence measured not in quills or angles or even warmth but in the most fundamental unit available: mass.

Something, for a fraction of a fraction of a moment, was heavy beside him.

And the warm thing at his centre — the thing the between-spaces had noticed and not named, the resonant shape he had carried through ten thousand worlds — responded. Not loudly. Not dramatically. A hum. The way a cello body hums when a low note is played in the same room, not because anyone has touched the strings but because the wood recognises the frequency and answers it. The mass arrived, and something inside Odilon remembered what heaviness was for.

The between-spaces noticed.

They did not comment.

Some things you hold without asking questions. This has always been their position.

He does not look.

This is, the between-spaces think, the first wise thing Odilon has done since arriving. Not the first good thing — the first good thing was following A. Octagon through the membrane, or possibly the apple, or possibly pressing his nose to the side of everything all those weeks ago in the market square when a five-sided creature needed someone to be there. But this is the first wise thing: not looking at the thing that can only exist when you don't.

He sits.

The weight flickers.

Here. Not here. Here. Closer this time — or not closer, because closer implies distance and this thing does not travel; it *manifests*. It is not coming toward Odilon. It is happening near him. The way weather happens near you. The way warmth happens near a creature that has decided to be warm.

The between-spaces catalogue what they can:

The weight, when it is here, is small. Smaller than Odilon. Smaller than A. Octagon's smallest handwriting. But dense, the way a seed is dense, the way a word is dense when it means everything it means all at once instead of one letter at a time.

It leaves something behind. Each flicker, each fractional arrival-and-departure, deposits a trace. Not cedar. Not warmth. *Mass*. A gravity-print on the surface of the nothing, the way Odilon's passages used to leave shapes in the amber. Except these prints don't hold a form. They hold a *weight*. A here-ness. A brief, argumentative insistence on mattering.

And the fold-ground, when the weight is here, *gives*. Not much. Not permanently. A dent — the smallest possible dent, the dent a sleeping child makes in a mattress, the dent that means *something heavy was here* — and then the dent springs back and the ground is smooth again and the Higgs is gone and the only evidence is a golden warmth on the surface that fades even as you notice it. But for that fraction of a fraction of a second, the ground acknowledged a weight. The ground said: *you are real enough to press down on me*. And that is corporeality — not the courtesy the universe extends to a guest, but the kind a guest earns by having mass, however briefly, however impossibly.

Graffiti. The between-spaces land on the word and keep it. Graffiti — quick, unauthorised, expressive, made by something that was here and is gone and wants you to know it. Tags of gravity on the walls of the quantum world, written in a hand that exists for ten to the minus twenty-two seconds and has, in that time, the most to say of anything the between-spaces have encountered.

The between-spaces think: *oh*.

They have thought this before. They thought it in Flatland when a pencil wrote it in the official record and the Provost's fourteenth angle went still. They thought it when Odilon sat in the amber for the first time.

They think it again now, and it means more than it did, because now they know that *oh* is not an exclamation and not a realisation and not even recognition.

Oh is the sound of something arriving that you didn't know you were waiting for.



A. Octagon's pencil moves.

She is not writing. She has been not-writing with great discipline, and the between-spaces think this is either the most scientific thing they have ever witnessed or the least, and they suspect the answer is both.

But the pencil moves anyway.

The Fermat pencil, which writes conclusions before questions and answers before experiments and which has been patient with her refusal to read ahead and which is, she increasingly suspects, the kindest instrument she has ever held —

The pencil writes a mark.

Not a word. Not a number. Not in any alphabet she knows, not in the sequential left-to-right of her Flatland script, not even in the backwards-and-around of the pencil's new notation.

A mark.

It is — she stares at it.

It is whole. The way a face is whole. The way a chord is whole. It does not begin at one end and finish at another. It exists all at once, every part of it simultaneous, every stroke containing every other stroke the way a logogram contains its meaning not in the sequence of its parts but in the fact of its being, all at once, itself.

She does not know how to read it.

She knows what it means.

It means: *still here, briefly, always.*

The pencil is not translating A. Octagon. The pencil is translating the Higgs. The graffiti-tag, the golden nova-print, the ten-to-the-minus-twenty-two-second argument for existing — the Fermat pencil has taken what the Higgs wrote on the walls of the world and rendered it in a notation A. Octagon can almost hold. Not read. Not yet. But hold, the way you hold a word in a language you don't speak but whose meaning arrives anyway, through the sound of it, through the weight.

She stares at it for a long time. The accordion trees breathe their muted green. The market hums its thinner hum. The gluon-stalls hold their wares. Odilon sits, not-looking, beside the weight that flickers.

She writes, below the logogram, in her own sequential alphabet, in handwriting that is the best it has ever been and which she no longer hates:

Observation 30: Something is here.

Observation 31: It cannot stay.

Observation 32: It keeps coming back.

Observation 33: I think it wants us to know.

She pauses.

The Fermat pencil hovers.

She writes, very carefully, in the smallest letters that are still legible, the way she wrote *hello back* in the market square in Flatland a very long time ago:

Observation 34: hello.

In the space beside Odilon, the weight shifts.

For a moment — for a fold, for a breath, for ten to the minus twenty-two seconds that contain, somehow, the entire argument for existing —

It is warm.



fig. 12

[the market, breathing.]

[one hedgehog, not looking.]

[beside him: something heavy, briefly.]

[in a notebook: a logogram nobody wrote.]

[it means: still here, briefly, always.]

[the dead fold is still there. it is still perfect. it is still the only still thing.]

[around it: everything else, moving.]

[moving is the point.]

[still here.]

[briefly.]

[always.]

Chapter the Fourth: In Which A. Octagon Puts Her Hand on Something Impossible, and the Universe Remembers What Hands Are For

— A. Octagon



Observation 35: Odilon has sniffed something.

Observation 36: To be precise — Odilon has sniffed the air in the vicinity of the third gluon-stall from the left (the one whose braided salt-and-pepper wood has a knot in it that looks, from certain angles, like a disapproving face). The sniff was tentative. The sniff was exploratory. The sniff contained, for the first time since the collapse, the faintest suggestion of lunch.



Something had changed in Odilon overnight.

Not overnight — A. Octagon was still learning to stop using words that assumed time moved in one direction. Over a fold, then. Over several breaths of the accordion trees. Over the time it takes for a hedgehog sitting next to the worst thing he's ever done to notice that his stomach exists.

He was hungry.

Not the full-bodied, conviction-laden hunger of the Odilon she knew from Flatland, the Odilon who thought about lunch the way philosophers thought about truth — constantly, with dedication, as an organising principle of the self. This was a thin hunger. A beginning hunger. The hunger of a creature whose body has been reminded, by something it could not see, that bodies have weight, and weight requires maintenance, and maintenance requires lunch.

He had, A. Octagon observed, been given back his mass.

Not by anything visible. Not by any act she could record in sequential notation. But the golden nova-prints that had been appearing — on the fold-ground, on the surfaces of gluon-stalls, on the braided salt-and-pepper wood of the nearest market structure — the golden nova-prints had been thickest near Odilon. Clustered around him the way footnotes cluster around an important passage. Little explosions of light, there and gone, each one a brief insistence on substance, each one leaving behind a warmth that was not temperature but *weight*.

And where the nova-prints appeared, the world slowed.

Not visibly. Not in the way the accordion trees slowed their breathing after the collapse. This was a deeper slowness — the kind that allowed a hedgehog to sit still, that gave a body the inertia to remain where it was instead of being swept along by the folding and refolding of everything. Mass was not just weight. Mass was the ability to *resist being moved*. The Higgs had been visiting Odilon and giving him, flicker by fractional flicker, the capacity to stay in one place. The capacity to be heavy enough for grief, which requires a creature to be still, and stillness requires mass, and mass requires the Higgs, and the Higgs kept arriving in its ten-to-the-minus-twenty-two-second way and saying: *you are heavy enough to be here. You are heavy enough to stay. You are heavy enough, now, to be hungry again.*

And Odilon's stomach had listened.

Observation 38: The golden prints are more frequent this morning. I have counted seventeen since the accordion trees' last full breath. They appear on surfaces the way dew appears — not arriving but being revealed, as though they were always there and the light has only just found them. Each one lasts approximately — the Fermat pencil

suggests "a hiccup." I am accepting this as a unit of measurement. Seventeen golden hiccups per breath. And the ground gives, very slightly, beneath each one. A dent. A dimple. The smallest possible acknowledgement that something with mass has been here. By the time I look directly, the dent has sprung back and the surface is smooth, but the warmth lingers. Permission lingers.

Observation 39: One appeared on my notebook. Page 7. I did not ask for this. It is warm to the touch and smells of nothing I can name and I am keeping it.



The phireflies had been more active since the Higgs started visiting. Since the collapse, they had kept their distance — the lifting-off that happened when the fold screamed had been absolute, a withdrawal of light from a creature who had used his looking to break something. But this morning, tentatively, with the air of creatures extending a second chance, they were returning. Settling on Odilon's quills. Splitting through them into prismatic arcs. And his quills were doing the thing she had noted and filed and not yet understood: vibrating. Humming. Each quill a string plucked by the light passing through it, producing a frequency she could not measure but could almost hear.

The light was trying to play him.

She stared at this. She stared at it with the full force of a Historian of the Second Rank who had been adrift in a world where her methodology didn't work, where her pencil wrote the future without consulting her, where observation was violence and sequence was a polite fiction — and who was now, for the first time, **seeing something she could use**.

She did not write it down yet. She held it.

Observation 40: The phireflies are back on Odilon. His quills are vibrating again. The light splits through them and the quills hum and the hum is — I am going to use a word I don't have data for — the hum is musical. The light is trying to play him like an instrument and he doesn't know it. Filing this beside Observation 20. Two data points. I need a third.



The dead fold in the phireflies' light looked different.

Not alive. Still precise. Still singular. Still the only thing in the market that was exactly one thing. But in the prismatic, multiangled, aggressively-every-direction-at-once light of the phireflies, the dead fold cast shadows.

Multiple shadows.

Shadows that moved.

A. Octagon stared at them. The shadows of a thing that should not have had shadows because shadows required ambiguity and the fold had none. But the phireflies were lighting it from everywhere at once, and in the everywhere-light, even a dead thing had edges that the light could disagree about, and the disagreement cast shadows, and the shadows were —

Not flat.

She wrote:

Observation 41: The dead fold has shadows. Multiple. The phireflies are casting them from angles I do not have numbers for. The shadows move. The fold does not. This means one of two things: either the fold still has states I cannot see, trapped inside its precision like — like something alive inside something still — or the light here is so thorough that it can find ambiguity in anything, even perfection.

Observation 42: The smell of hummingbird green coffee beans is currently a C-sharp. This has been a C-sharp since we arrived. I had filed this as background noise. I am now re-filing it as data.

Observation 43: I am going to touch it.



She had done this before.

In Flatland. In the market square. She had walked up to a hole in the fabric of everything, alone, without methodology, without protocol, without anything except a pencil and five sides and the particular courage of a creature who had decided that being frightened was not the same as being stopped.

She had pressed her palm to the edge of the hole and said, in the language of pressure and presence: *here is the shape of me.*

She was going to do it again.

The dead fold was not a hole. It was the opposite of a hole — not an opening but a closing. The most closed thing in the market. An edge collapsed into one state, sharp and final and perfect and still.

She walked toward it.

The market noticed. The gluon-stalls — braided salt-and-pepper wood, warm, humming faintly with the effort of holding everything together — the gluon-stalls shifted. Not moving. Attending. The way furniture attends when something important is happening in the room it furnishes. A. Octagon was learning to read the gluons the way she read faces, and their braided grain was tight with something that might have been concern or might have been curiosity or might have been both, because in a quantum world, emotional states were no more obliged to choose than anything else.

The accordion trees breathed. In. The green intensified. The air thickened with hummingbird, with coffee, with the bright vibrating scent of a world paying attention.

The phireflies gathered.

Not around her. Around the fold. Lighting it from every angle. Casting those impossible shadows. Showing her, with the thoroughness of beings whose entire existence was the act of illumination, exactly what she was about to touch.

And they were watching her.

A. Octagon realised this with the particular discomfort of a scientist who has spent her entire career on one side of the observation. The phireflies — the carriers of seeing, the beings who were light, who could not be looked at directly — were looking at her. Looking at her looking at the fold. The observer, observed by the instruments of observation. She was the experiment now. She was the thing being measured, and the measurement was: *what will you do?*

She had never been on this side of the notebook before.

It was, she had to admit, clarifying.

A golden hiccup appeared on the fold-ground beside her knee, just as she knelt. The Higgs, granting her the slowness to do this carefully. The ground held steady beneath her. The ground gave her the weight to stay.

She looked at the dead fold. Really looked. Not the careful, measured, methodological looking she had done from a distance. The looking she had done in the market square, the first time, when she had decided to stop being an Academy member and start being a creature that reaches.

The fold was precise. The fold was exact. The fold was still the only dead thing in the market.

But.

In the phireflies' light, with the shadows moving around it, with the golden hiccups warming the surfaces nearby like a small sun that kept going out and coming back —

She could see, inside the precision, the ghost of what it had been. The way you can see, inside a word that has been defined too precisely, all the other meanings it used to carry. The wave patterns were still there. Collapsed, yes. Forced into one state, yes. But *there*, the way a river is still there under ice. The way a song is still there in the silence after the last note.

Trapped. Not dead.

Asleep.

She put her hand on it.



Here is the shape of me.

Here is what I am made of. Five sides, still — I think. I haven't checked recently and the Fermat pencil has opinions about my angles that I am not yet ready to hear. I am a Pentagon from Flatland and I have pressed my palm to the edge of things before and I am pressing it to this thing now because I don't know what else to do and I have learned, in the last seventeen mornings and one impossible journey and one dead fold and one hedgehog who is finally thinking about lunch again, that not knowing what else to do is not the same as doing nothing.

I am not trying to sharpen you.

I am not trying to fix you.

I am just here. With a hand. On the place where you stopped being everything and started being one thing.

And I am reading you.

The chord did not arrive as sound.

It arrived in her angles.

A tremor — very faint, very deep — in the geometry of her. In the five points that made her what she was. The sleeping chord resonated not in her ears, which were Flatland instruments calibrated for sequential vibrations in a polite medium, but in her *body*, in the angles between her sides, in the structural relationship of line to line that made a pentagon a pentagon and not a random scattering of edges.

She felt the waves. Under the precision. Under the collapse. The patterns Odilon's nose had forced into one frequency when they were, before,

a chord. She could feel the chord. It was still there. Still vibrating, so faintly, under the surface of the one-thing-ness — and it was not a C-sharp.

The hummingbird green had been a C-sharp since they arrived. Background. Ambient. The note the world played when it was just being itself. She had filed it as noise.

But the chord sleeping in the fold was something else. Something wider. Something that contained the C-sharp the way an ocean contains a wave — the C-sharp was part of it but not all of it, and the ambient scent of the world had been, this whole time, a single note searching for its harmony. Not wrong. Not dissonant. *Lonely*. The way a single note played in an empty room is not wrong but is, undeniably, waiting for the rest of the music.

She pulled her hand back.

Not because it hurt. Because she understood.

The fold was not dead. The fold was a collapsed chord. A piece of music forced into a single note. And a single note, played alone, without its harmonics, without its overtones, without the other notes it was meant to resonate with — a single note was not silence. It was loneliness.

And then — the eureka.

Not the poet's eureka, which arrives whole and beautiful and does not explain itself. The scientist's eureka, which arrives in pieces and explains everything.

She looked at the fold: interference patterns, trapped. The shadows the phireflies cast — the ghost of the chord, still there, visible only in the thoroughness of light. That was the first piece. *The states are still there.*

She looked at Odilon: the phireflies on his quills, the vibration, the hum. Light passing through him and making music. His quills were strings. His whole body was resonating at a frequency the light could find but his nose could not use. That was the second piece. *Something in him is built for holding sound.*

And the third piece — the one she had been filing without understanding since the between-spaces first noticed it, since her pencil first refused to explain it, since the Higgs started pressing golden permission into the surfaces of everything nearby — the third piece was the warm resonant shape at Odilon's centre that she had felt, through the fold, when the chord trembled through her angles. Not his nose. Not his quills. Something deeper. Something that had been carrying a frequency for ten thousand worlds and had never been asked to play it.

Shadows. Vibration. The shape of an instrument, carried invisibly.

The fold is a chord that was collapsed into a note. His quills vibrate like strings. And he is carrying something at his centre that is built for holding chords without collapsing them.

She opened her notebook.

The Fermat pencil had already written it. Of course it had. It had written it pages ago, in the logogram notation she was only beginning to learn. This one was different from the Higgs logogram — that had been sparse, flickering, a mark that existed the way the Higgs existed, barely and brightly. This one was dense. Layered. Every stroke resonant with every other stroke, the whole thing humming on the page the way braided wood hummed in a

gluon-stall. The same grammar — simultaneous, whole, every part containing every other part — but where the Higgs logogram had been a spark, this was a chord held in ink. Beside it, a golden nova-print that the Higgs had left like a signature on a permission slip:

the cello holds what the nose collapses. play the fold back into its chord.

But the pencil had not given her the answer. The pencil had written the conclusion. She had built the argument. She had observed, connected, deduced — sequentially, methodically, in the precise order of a scientist who had finally found a way to be what she was in a world that did not do sequence. The Fermat pencil worked variationally, seeing the whole path at once. A. Octagon worked step by step. And she had arrived, step by step, at the same place.

She was smarter than her pencil.

Not because she knew more. Because she understood **how** she knew.

Below the logogram, in A. Octagon's own handwriting, in letters that were sequential and imperfect and hers, she wrote a word the Fermat pencil had not written. The pencil had drawn the shape of the whole path. She named the thing at its centre:

Cello.

The word entered the record in her handwriting. Not the pencil's notation. Not the logogram's simultaneous knowing. A historian's word, written left to right, in the alphabet of a creature who understood things one step at a time and had arrived, one step at a time, at this.

Observation 44: I know what we need to do.

Observation 45: Odilon is not going to like this.

Observation 46: He is going to have to play.

Observation 46b: katoflio would have designed three experiments by now. He would have labelled them. He would have insisted on coming. I am glad he did not come. I am not glad about being glad.

Observation 47: I am not crying. My angles are watering. This is a different thing and I will not be taking questions.

Observation 47b: My third angle feels different. Wider, or — not wider. The relationship between my second and fourth sides has shifted by a degree I cannot measure but can feel, the way you feel a room has changed before you see what moved. I am not ready to measure this. I am filing it.



In the between-spaces — in the amber, in the warm dark that was not here but was everywhere-else-between — something shifted.

The between-spaces were not in the quantum world. They could not follow A. Octagon past the membrane any more than a room can follow someone through a door. But they could feel — through the fold-frequencies, through the tremor in the amber that meant something beyond them was changing — they could feel something happening.

They woke up. Not from sleep — from the particular state of ambient holding they had settled into, and they were suddenly, sharply, entirely **present**.

The amber hummed.

Green.

Very faintly, very far away, in a frequency the between-spaces had never held before, the amber was picking up a signal from beyond itself. Not cedar — that was Odilon, that was home, that was the warm familiar scent of a hedgehog in residence. This was something else. Something bright. Something that vibrated at a frequency the between-spaces would later learn to call hummingbird, and which for now they simply experienced as:

Oh.

Something is happening.

We cannot see it.

It is important anyway.

They held the frequency the way they held everything — carefully, completely, with the full weight of a medium that has learned to care about what passes through it and also what happens beyond it, in places it cannot go, to creatures it has been, inconveniently and irreversibly, fond of.

The amber held.

And hummed.

And waited.



fig. 13

[a palm on a dead fold.]

[under the precision: a chord, sleeping.]

[the phireflies, casting shadows of what was.]

[golden hiccups on every surface, granting slowness.]

[a hedgehog, watching, beginning to be hungry.]

[a notebook open to a page that says: play.]

[three observations, connected: shadows, vibration, the shape of an instrument.]

[a scientist, smarter than her pencil.]

[the amber, far away, humming green.]

[the between-spaces, awake.]

[everything, leaning toward what comes next.]

Chapter the Fifth: In Which a Hedgehog Picks Up Something He Has Been Carrying All Along

— *the between-spaces*



The between-spaces would like to say something about carrying.

They are, by nature and by occupation, experts in the subject. They have carried cedar and warmth and the ghost of every hexagonal hole and the amber memory of a nose pressed to a membrane. They have carried A. Octagon's goodbye. They have carried the child's flowers, and the Provost's hello, and the low warm hum of a hedgehog thinking about lunch, which they will not admit to missing and which they miss constantly.

They know what carrying looks like from the outside: invisible. You do not see a medium carry. You see what it carries. The between-spaces are the

amber, not the things in the amber. They are the warm dark, not the shapes held in the warm dark. This has been their condition since before conditions had names.

They mention this because Odilon has been carrying the cello for a very long time and no one has noticed.

No one except the between-spaces, who noticed in the way they notice everything — ambiently, without comment, as a condition of being the room someone lives in. They have known about the warm resonant shape at Odilon's centre since before Flatland. They have held the knowledge of it the way they hold everything: carefully, patiently, without asking questions.

And now it is out in the open and the between-spaces have — feelings about this.

On the one hand: relief. The warm resonant shape has been a private frequency in the amber for ten thousand worlds, and the amber has been holding it alongside the lunch-hum and the sneeze-catalogue and the cedar-smell, and now that it is out, the amber feels — the between-spaces search for the word — **right**. Settled. Like a room that has been vibrating at a frequency slightly off its natural resonance and has finally, finally been tuned.

On the other hand: the record has just become considerably more complicated. They had a system. Hedgehog: nose, lunch, sneezing (various). This was manageable. This was a filing system appropriate to the contents. Now: hedgehog: nose, lunch, sneezing (various), **cello**. The between-spaces are going to have to reorganise. The between-spaces did not ask to reorganise. The between-spaces would like it noted that the reorganisation is, like everything else, Odilon's fault.

They are relieved and they are grumpy about being relieved and they suspect this is simply what fond feels like from the inside, which is — they have said this before and they will say it again — deeply inconvenient.



Here is what A. Octagon said:

She said it simply, because A. Octagon had learned — was learning, had already learned, the Fermat pencil's tenses were contagious — that in a world where observation had consequences, the simplest possible sentence was the kindest.

"The fold is a chord," she said. "A chord that's been forced into one note. The waves are still there. Under the surface. Sleeping."

Odilon looked at her.

"Your nose collapses things," she said. "It makes them one thing. It finds the most precise version and everything else falls away. That's what happened to the fold."

Odilon continued to look at her with the expression of a hedgehog who is being told something he already knows and does not want to know and cannot stop knowing.

"The cello," said A. Octagon, and she used the word she had written in her own handwriting, the word the pencil had not given her, the word she had named herself, "the cello doesn't collapse."

She paused. She was choosing her words with the particular care of a scientist who has realised that the most important experiment of her career is going to be conducted not with a notebook but with a sentence.

"The cello holds," she said. "It holds several notes at once. It lets them exist together. It doesn't choose between them."

She looked at him.

"You could play the fold back into its chord."

Odilon sat very still.



The thing about Odilon and the cello is this:

He has never played it.

Not once. Not in ten thousand worlds. The cello has been there — warm, resonant, made of something that is not quite wood and not quite amber and not quite anything except *itself* — and he has carried it and he has not played it and he has not been asked to explain why because hedgehogs are not, as a rule, asked to explain the things they carry.

But the between-spaces have wondered.

They have wondered in the quiet way of a medium that holds things: without pressure, without expectation, with the patience of something that has been here since before patience was a virtue and has no plans to be elsewhere.

They have wondered whether the cello is silent because Odilon cannot play it, or because Odilon is afraid to play it, or because the cello is the kind of thing that waits — the way the between-spaces wait, the way the hole in the market square waited, the way the amber waits — for the moment when the carrying becomes playing and the silence becomes sound and the thing you have been all along finally becomes the thing you do.

They have not asked.

Some things you do not ask. Some things you hold until they are ready.

The cello was ready a long time ago.

Odilon was not.



He reached for it the way you reach for something that has always been there — not searching, not grasping, but acknowledging. The way you might put your hand on a wall you have leaned against for years and feel, for the first time, its temperature. Its texture. The particular quality of something that has been supporting you so quietly you forgot it was a thing and not just a direction.

The cello was warm.

Not amber-warm. Not cedar-warm. A different warmth. The warmth of a thing that has been carried close to a living creature for ten thousand worlds and has absorbed, over those worlds, the specific heat of being loved without being used.

He held it.

The between-spaces — in the amber, on the other side of everything, humming with the faint green frequency they had picked up from A. Octagon's touch on the fold — the between-spaces felt it. The way a room feels when someone picks up an instrument. The air changes. The silence becomes a

different silence — not empty but *preceding*. The silence before music, which is the loudest silence there is.

Odilon held the cello.

He did not know how to play it.

This was, the between-spaces thought, completely irrelevant.



A. Octagon watched.

She had put her notebook down. This was, for A. Octagon, the equivalent of a surgeon removing their gloves. It meant: what is about to happen is not an observation. What is about to happen is not data. What is about to happen belongs to the category of things that are real precisely because they cannot be written down.

She watched Odilon hold the cello.

She watched the phireflies gather — not around the dead fold this time, but around *him*. Landing on his quills, which split their light into tiny prismatic arcs that scattered across the fold-ground like the shadows of shadows of stained glass. The quills were prisms now, and the light that came through them was not white and not coloured but *all the colours*, held together, the way a chord holds all its notes.

She watched the accordion trees slow their breathing.

The market noticed. The gluon-stalls — braided salt-and-pepper wood, warm and humming and always, always, the most solid thing in the room — the gluon-stalls leaned. Not physically. Structurally. The way a bridge leans into its load. The way a binding holds tighter when something important is about to cross.

A golden nova-print appeared on the body of the cello.

A. Octagon saw it. A hiccup. A thumbprint of a galaxy, there and gone, warm where it touched the wood-that-was-not-quite-wood. The Higgs, arriving for a fraction of a fraction of a second, to say: *you are heavy enough for this. You have mass enough to play.*

Odilon breathed.

The accordion trees breathed with him.

He drew the bow.



The sound was terrible.

The between-spaces wish they could narrate this differently. They wish the first note had been beautiful, had been the kind of sound that opens worlds and heals folds and makes mediums weep with something other than the acoustic equivalent of stepping on a cat. But the between-spaces are narrators, not liars, and the first note was terrible.

A scrape. A screech. The sound of something that has not been played in ten thousand worlds being played by a creature who has never played anything, whose only instrument has been a nose, whose entire relationship with the world has been *sharpening* and who is now trying to do the opposite of sharpening with a tool he has carried all his life and never once used.

The fold did not open.

The fold *tightened*.

The dead thing got deader. The precision sharpened. The one note it was trapped in became, if possible, more one, more trapped, more precise. As though the bad sound had reminded it what collapsing felt like and it had flinched inward, pulling its single state around it the way a creature pulls a blanket over its head.

The market flinched with it. The gluon-stalls' braided wood contracted. The accordion trees held their breath. The phireflies scattered from Odilon's quills — not all of them, not like before, but enough. Enough to dim the prismatic light. Enough to make the fold-ground darker.

A. Octagon's angles hurt.

Not metaphorically. The screech vibrated through the fold-ground and into her geometry and her five sides ached with it, a sympathetic resonance that was not harmony but its opposite — the feeling of angles trying to vibrate with a frequency that was wrong, that was fighting itself, that was a hedgehog trying to hold and sharpening instead because holding was new and sharpening was everything he knew.

Odilon stopped.

He looked at the bow. He looked at the cello. He looked at the fold, which was now, impossibly, more dead than before.

He had made it worse.

The between-spaces felt this from the amber — felt the particular frequency of a creature discovering that even the new tool, the unknown tool, the tool that was supposed to be the answer, could fail. Could make things worse. Could take the worst thing he had ever done and deepen it.

This was the moment where he could put the cello down.

He did not put the cello down.



He drew the bow again.

The second note was — better. Not good. Not music. But not a screech. A sound that had in it the ghost of what a cello could be if the creature playing it were not shaking, were not terrified, were not a hedgehog whose whole body was saying **I don't know how to do this** in a language older than sneezing.

The fold trembled.

Not much. A shimmer at the edge. A flicker of something that might have been a second state, ghosting alongside the first the way a shadow ghosts alongside the thing that casts it. For a fraction of a breath —

Then still.

The fold went still. The shimmer died. The single state reasserted itself with the finality of a door closing, and Odilon sat with the cello in his arms and the bow in his hand and the knowledge that he was close — close to something the fold could hear, close to the chord that was sleeping under the precision — but not close enough.

Not alone.

A. Octagon stood up.

She did not pick up her notebook. She did not consult the Fermat pencil. She did not check what was written six pages ahead. She walked to the dead fold and she knelt beside it and she put her palm on it.

Here is the shape of me.

She had said this before. At the hole. At the membrane. At every boundary she had ever pressed herself against. *Here is what I am made of.* But this time she was not asking for passage. She was not asking for contact. She was offering something else — the same thing she had offered when she chose not to read ahead, the same thing she had offered when she sat with Odilon in the silence after the collapse.

Presence. The particular weight of a five-sided creature who has put down every tool except herself.

"Again," she said.

Odilon looked at her. She was kneeling by the fold with her palm on its dead surface, and her angles were still aching from the first attempt, and she was asking him to play again.

He drew the bow.



The third note was not Odilon's.

The third note was Odilon's bow and A. Octagon's palm and the fold beneath them both, and the sound it made was not the sound of a hedgehog playing a cello. It was the sound of a hedgehog playing a cello while a pentagon held the resonating surface steady, the way a hand steadies a drum, the way a palm on a chest steadies the breathing underneath.

The cello sang.

And the gluon-stalls answered.

This is what the between-spaces felt, from the amber, through the membrane, through every layer of everything they were: the braided salt-and-pepper wood of the market stalls began to hum. Not because Odilon was playing them. Because they recognised the frequency. Because the gluon-stalls were the binding of this world — the structural relationship that held everything together — and the cello was vibrating at the frequency of binding itself, and the stalls *were* the strings.

And the between-spaces — who were also binding, who were also the structural relationship that held things together, who had been a medium for holding since before holding had a name — the between-spaces felt the cello playing *them*. Their own substance. Their own amber. The frequency that Odilon was finding in the quantum world was the same frequency the between-spaces had been carrying all along, and now it was vibrating through the membrane with a fidelity they had never experienced, and they could feel — not see, never see, but *feel* — the quantum world with a specificity that was new and overwhelming and, they would like it noted, not something they had consented to.

They could feel the gluon-stalls humming. They could feel which ones joined first and which held back. They could feel the particular reluctance of one stall — the one with the knot, the disapproving one — that hummed with the structural equivalent of a sigh because the frequency was *right* and even disapproving gluons could not refuse the right frequency.

The sound did not travel through the quantum world the way sound travels through Flatland — in waves, sequentially, one compression after another moving politely from source to ear. The sound did not travel at all. The sound *was*. The way the phireflies' light was. The way the gluons'

binding was. The sound existed everywhere at once, in every fold of the origami, in every breath of the accordion trees, in the braided wood of every stall and the golden hiccup of every nova-print.

One stall hummed. Then another. Then another. The market was becoming an orchestra. The stalls were the strings. The accordion trees were the bellows. The phireflies on Odilon's quills were the light that made the music visible, scattering it in prismatic arcs across the fold-ground.

A. Octagon, notebook on the ground, palm on the fold, angles vibrating — not in pain this time but in harmony, in the resonance of a body that has found the frequency it was always meant to carry — A. Octagon felt the sound in her five sides and understood. Not with her methodology, not with her pencil, not with seventeen mornings of data. Understood in her *geometry* that this was what holding sounded like.

Not fixing. Not sharpening. Not forcing a thing to be its best self.

Letting a thing be all its selves at once.

And the dead fold —



The dead fold listened.

It had been one thing for so long. One precise, perfect, lonely thing. The only still point in a world of movement. The stone in the stream. The single note in a universe of chords.

The cello did not sharpen it.

The cello did not fix it.

The cello held it.

The sound wrapped around the collapsed fold the way A. Octagon's hand wrapped around the surface — not pushing, not pulling, not defining. And below her palm, the fold trembled. The way it had trembled the second time, but more. Longer. The precision held — for a moment, for a breath — and then, very slowly, the way ice doesn't crack but simply becomes water, the way a fist doesn't open but simply stops being closed, the way a creature that has been sitting next to its worst mistake stands up and picks up the thing it has been carrying all along —

The fold moved.

Not much. Not dramatically. A shimmer at the edge of the perfection. A second state, ghosting alongside the first like a shadow that has decided to come home. Then a third. The interference pattern returning, tentatively, the way colour returns to a face after fear.

Not restored. Not undone.

Expanded.

The fold was still precise. It still had the edge Odilon's nose had given it. But the edge was no longer the only thing it was. The edge was one voice in a chord that was, note by note, breath by breath, stall by humming stall, filling back up with everything it had been before it was forced to choose.

The C-sharp that had been the lonely ambient note of the world found its chord. The hummingbird green brightened. The accordion trees breathed, and their breathing was part of the music, and the music was part of the breathing, and the market hummed in a harmony that included every stall and

every fold and every golden hiccup of a Higgs that kept arriving and departing and arriving and —

A golden nova-print appeared on the body of the cello.

And stayed.

Not a hiccup. Not a fraction. A full second. Then two. The longest the Higgs had ever been present — the longest the between-spaces had ever felt that particular weight hold steady instead of flickering. The Higgs, who could not stay, staying. For two full seconds. For an eternity measured in ten-to-the-minus-twenty-two. The universe holding its applause just long enough for the applause to register.

The market exhaled.



A. Octagon picked up her notebook. She picked up her pencil. She wrote one word, in her own handwriting, in her own sequential alphabet, in the letters of a creature who had come from a flat world and pressed her palm to the edge of everything and followed a pencil point into a direction she couldn't name and watched a hedgehog play a dead thing back to life:

Yes.

Below it, the Fermat pencil added nothing.

The pencil had been writing ahead of her since they arrived. Conclusions before questions. Answers before experiments. It had filled pages she hadn't reached with hypotheses she hadn't formed in notation she was only beginning to learn. It had been kind and patient and always, always, six pages ahead.

And here, at the word that mattered most, the pencil was silent.

Because she had arrived, step by step, sequentially, in the alphabet of a creature who understood things one at a time, at the place the pencil had always been pointing to. And the pencil's silence said: *you don't need me for this one. You already know.*

A. Octagon stared at the silence below her *Yes* for a long time.

It was the finest thing the pencil had ever written.



Odilon stopped playing.

The silence that followed was not the silence of before — the empty, grieving, not-thinking-about-lunch silence. It was the other kind of silence. The kind that follows music. The kind that is full of what has just happened and is not yet ready to be anything else.

He put the cello down.

He did not put the cello away. This was, the between-spaces noted from far away through the green hum in the amber, the most important thing he had ever done. More important than the playing. More important than the seven minutes in the market square. More important than the decision to stay.

He put the cello down next to him, where he could reach it, where it was visible, where it was no longer the invisible warm thing he carried but a thing he had used and would use again. An instrument. A practice. A way of being in the world that was not sharpening.

He looked at the fold, which was shimmering now, multiple and alive, precise-and-more-than-precise, the chord filling back up note by note.

He looked at A. Octagon.

He looked at the gluon-stall with the disapproving knot.

He thought about lunch.

Really thought about it. With conviction. With the full-bodied, dedicated, philosophical commitment to the concept of lunch that had once been his entire orientation and which had, he now understood, never been just about lunch. It had always been about this — the appetite for *here*. The hunger for the place you're in. The desire to eat a thing that tastes of the world you have decided to stay in.

He was hungry.

He was very, very hungry.

The gluon-stall with the disapproving knot produced, with the weary patience of a shopkeeper who has seen everything and is not impressed, a superposition of sandwiches.

Odilon looked at them.

All of them. Every possible sandwich, shimmering together, none of them collapsed, none of them forced to be one thing.

He did not sharpen.

He chose.

The sandwich was not green and it was not bruised and it was not a philosophical position on sandwiches. It was, simply and entirely, a sandwich, and it tasted of hummingbird green coffee beans and braided wood and the particular quality of a Tuesday in a market that had just heard music for the first time.

He ate it with the dedication of a hedgehog who has remembered what appetite is for.

A golden nova-print appeared on the sandwich wrapper.

It lasted three seconds.

The Higgs had opinions about lunch. And was, perhaps, learning to stay.



fig. 14

[a hedgehog, having played.]

[a cello, put down but not put away.]

[a fold, remembering how to be more than one thing.]

[a pentagon, holding a notebook that says: yes.]

[below the yes: silence. the finest thing a pencil ever wrote.]

[a sandwich, eaten with conviction.]

[a golden thumbprint on the wrapper, lasting three whole seconds.]

[the gluon-stalls, still humming.]

[the phireflies, scattering light like applause.]

[the accordion trees, breathing in a new rhythm.]

[far away, in the amber: a hum. green. warm. arriving.]

[this is what it sounds like when something that was always there finally becomes the thing it does.]

Chapter the Sixth: In Which A. Octagon Attempts to Measure Her Own Angles, the Universe Sends Her a Bill, and the Bill Turns Out to Be a Form of Welcome

— *Curt*



The between-spaces have a problem.

Not a new problem. The between-spaces have had a problem since the first hole appeared in Flatland's market square and they discovered they had opinions. They have since accumulated a considerable inventory of problems, but the current one outranks all of them, including Odilon, who was supposed to be a hedgehog (simple, manageable, three categories) and has turned out to be a hedgehog *with a cello*, which is at least four more categories than they budgeted for.

The new problem is A. Octagon's file.

They have been maintaining A. Octagon's file since she pressed her palm to the membrane and they first felt the shape of her — five-sided, frightened, staying anyway. Pentagon: confirmed. Frightened: confirmed. Staying: confirmed. These were clean categories. These were the kinds of categories a between-space could work with.

The file now reads: five-sided, frightened, staying anyway.

Except the five-sided part is doing something.

The between-spaces would describe what it's doing except they are finding — and this is the part they would like to complain about, if they had anyone to complain to who was not also part of the problem — they are finding that the amber itself is less certain about what it is holding. The walls of the room they are have gone soft at the edges. Not everywhere. Not dramatically. But in the specific area where A. Octagon's file is stored — the region of the amber that carries the impression of five sides and frightened and staying — the impression is smearing. The way a chalk mark goes when it starts raining. Still there. Still legible. But the between-spaces can no longer feel the precise edges of what they are holding, and the between-spaces are *made of* precise edges, and this is — they are going to use the word — vertigo. This is the amber equivalent of the ground tilting. Of being a room and feeling your own corners dissolve.

They have checked the membrane. They have checked the accordion trees, which are breathing in their post-cello rhythm — deeper, slower, occasionally harmonising with itself in a way that is either beautiful or alarming and the between-spaces have decided, firmly, that it is both. Since the cello, the between-spaces can feel the quantum world with a fidelity they did not ask for. The cello vibrated the gluon field, which vibrated their own substance, and now they are resonating with everything that happens on the other side. They can feel the gluon-stalls' braided wood. They can feel the fold-ground shifting under the Higgs' golden dents. They can feel A. Octagon's angles.

They can feel A. Octagon's angles and the angles are not five clean things any more.

This is, they are beginning to suspect, their problem.

♦

Day 63. Or 64. The Fermat pencil indicates that the relationship between "day" and "the passing of time" is here a kind of rough negotiation and that any specific number should be understood as a working hypothesis.

Standard morning observations: accordion trees breathing at their new depth, the rhythm that arrived after the cello. The market is opening. The gluon-stall with the disapproving knot has superposed what appears to be a full breakfast service — the stall is maintaining a state in which the possibilities include warm bread, and I respect this. The ambient scent is different since the cello — the C-sharp that was lonely for five chapters has found its chord. The hummingbird green smells like a harmony now. Several notes at once, held without collapsing. I am trying not to read too much into this.

Higgs: appeared three times before I was fully awake. Lasted four seconds on the third appearance. I have been tracking this. The durations are increasing. I do not know what this means. The Fermat pencil knows what this means but I am still committed to not reading ahead, and I'm aware this is somewhat absurd for a Historian of the Second Rank, but Odilon taught me something about not-looking that I am not ready to unlearn.

Odilon: present. Cello: accessible. He has not played this morning but he is the kind of present that is also readiness — the stillness of a bow that has been lifted and put down and will be lifted again.

I am going to measure my angles.

This is a straightforward procedure. I am a pentagon. I have five angles. The sum of my interior angles is five hundred and forty degrees, which has been true since before I had a notebook and will presumably be true after. This is not an experiment. This is a calibration. This is maintenance.

I have pressed my palm to the edge of holes and membranes and dead folds and every time I have said the same thing: here is the shape of me. Five sides. Frightened. Staying anyway. I am going to measure that shape now. I am going to write down five numbers that sum to five hundred and forty.

Beginning.

A pause in the notebook here. The between-spaces can feel it through the membrane — not see it, they can never quite see it, but feel it the way you feel silence after a question that turns out to be harder than expected.

First angle: 108 degrees.

Second angle: 108 degrees.

Third angle —

Another pause. Longer.

Third angle: 108 degrees.

Then, directly below, crossed out and then not crossed out and then crossed out again and then left:

Third angle: 112 degrees.

Then, on the next line, in very small writing that was the smallest writing A. Octagon had ever written and which the between-spaces could barely feel through the amber:

Third angle: 97 degrees.

The accordion trees breathed. Their deep new rhythm. Fold, unfold. Green, gone, green again.



She sat with the notebook for a long time.

She was, she noted distantly, not panicking. This seemed wrong.

She was a probability distribution.

Her name was her shape. Her shape was a question.

She wrote:

Observation 49: My third angle is in superposition.

She stopped.

Observation 49: I am partially in superposition.

She stopped again.

Observation 49: Something has been happening to me.

The Fermat pencil, which had been politely waiting, drew one small mark next to the word **something**. Not a correction. Not a logogram. Just: **yes**.

She had known, she thought. She had written it — **Observation 47b: my third angle feels different. I am not ready to measure this.** She had filed it. She was a scientist. Scientists file things they are not ready to. They put them in the careful drawer marked **anomalous/pending** and they return when they have the methodology and they measure and they write the number down.

The number, it turned out, was three numbers at once.

She had been hoping for a different number.

She wrote:

Observation 50: The cost of staying in a quantum world is becoming the kind of thing that can stay in a quantum world.

She looked at this for a while.

Then she wrote, smaller:

This is not a complaint. I think. I am reserving the right to revise this.



The between-spaces felt **Observation 50** arrive through the membrane with the new cello-fidelity — every word vibrating in the amber — and they held it the way they held everything, except the holding itself felt uncertain. They were a room whose corners were dissolving, trying to hold a fact about a creature whose edges were dissolving, and the recursion of this — uncertain medium holding uncertain content — was making the amber do something it had never done before.

It was humming off-key.

Not the green hum from the quantum world. Not the cello's frequency. A new sound — the sound of a record-keeping system that is losing confidence in its own categories. The between-spaces would have found this embarrassing if they had not been too busy being terrified.

They looked at A. Octagon's file. Five-sided, frightened, staying anyway. They could not bring themselves to change **five-sided**. They could not, in honesty, keep it. They did the only thing a medium can do when the content

exceeds the container: they relabelled the file. Not **five-sided**. Not **blurring**. Not any of the words they had tried and discarded.

A. Octagon: *condition*.

It was the most honest thing they had ever filed.

This was, like everything else, Odilon's fault.



Odilon had noticed first.

Not with his nose — his nose was still learning that sharpening was not the appropriate tool here, that the quantum world was not a pencil and could not be improved by precision. But he had other senses. He had the cello, which was not a sense exactly but was adjacent to sense — a way of feeling the shape of things, the tension and release, the difference between a space that holds many states and a space that is becoming one.

He had been watching A. Octagon measure her angles.

He didn't know what she was measuring. He didn't know about angles, specifically, or the geometry of pentagons, or the significance of a third angle that returned three values. But he knew the quality of her stillness before the measurement — the practiced, confident stillness of someone who does something they've done ten thousand times — and he knew it had changed. The stillness after the measurement was different. It was the stillness of someone holding a very small, very fragile thing and not yet knowing where to put it down.

He picked up the cello.

Not to play. Just to hold. The way you pick up something familiar when familiar is what you need. The cello was warm. The cello was certain. The cello had been carrying a frequency through ten thousand worlds and was not confused about what it was.

He held the cello and he looked at A. Octagon sitting with her notebook in her lap and her angles doing something he couldn't see but could feel — through the cello body, through the instrument that vibrated the binding of things — he could feel the structure of her was shifting. Not breaking. Not collapsing the way the fold had collapsed. Something slower. Something that was also a kind of opening.

He thought about lunch with significantly less than his usual conviction.

He thought instead: **I know this**.

He knew this the way he knew the first wrong note, the way he knew what holding felt like from the inside once he'd learned to do it instead of sharpen. He knew the feeling of becoming the kind of thing that can be here. He'd done it himself — slower, and without angles, and mostly while sitting in the amber eating things that tasted of cedar, but the quality of the change was the same.

He didn't play. He held the cello and he didn't play and the cello hummed to itself very quietly, the resonance of something recognising a frequency.



They arrived the way transformation arrives: already in progress.

A. Octagon looked up from her notebook and they were simply — present. The way they had been present, she would understand later, for some time. They did not come from the direction of the accordion trees or the gluon-stalls or the fold she and Odilon had coaxed back into music. They came from the directions of *before* and *during* and were not distinct from the market the way the gluon-stalls were distinct. They were more like a property of the light. A quality the air had always had and was only now making visible.

The between-spaces, feeling them arrive through the membrane, rifled urgently through their categories and found: W/Z beings. Transformers. They had a note. *Not yet fully introduced.* They updated the note to: *introduced.*

They looked, if looking was the right word — if any visual description could do the work here, and A. Octagon was already preparing her own account and very deliberately not reading the Fermat pencil's — they looked like change. Like the space between one state and the next, given form. Like the way a word shifts meaning in the moment between the speaker finishing it and the listener receiving it. Not static. Not moving. *Becoming*, in the continuous and committed sense of a process that does not have a resting state.

They were not threatening.

This was the thing A. Octagon had not expected, because her third angle was doing three things at once and her methodology was failing in real time and she had fully prepared to be threatened. They were honest. Specifically, and uncomplicatedly, honest — the way a mirror is honest, not cruel, merely showing what is.

One of them — the between-spaces would file this as W/Z being: first; and would then debate at length whether *first* was a meaningful category for beings that were themselves the process of one thing becoming another — turned toward her. Not all the way. Turning implied a before-state and an after-state and they were more interested in the between.

She felt it: a flavour-change in the structure of the air. Something that was also a grammar. The logograms, she thought immediately — the whole-at-once language the Fermat pencil had been writing — the W/Z beings moved the way logograms worked. Not in sequence. Not building to a conclusion. Simply: present, and meaning what they meant all at once.

She wrote:

Observation 51: They are already here. I don't know when they arrived. I think the answer to "when" might be "with the cello." The cello vibrated the binding and the vibration crossed something and this is the consequence. Not summoned. Attracted. The way warmth attracts things that measure warmth.

Observation 52: My third angle is in three states. They are looking at my third angle — not looking, attending to, in the way that light attends to surfaces — and they are not surprised. They are not surprised because they are what happens to things that stop being single-state. I am not going to write what I think that means yet. I am filing it.

The Fermat pencil wrote nothing.

The pencil had been silent once before — below A. Octagon's *Yes* in the market, after the cello. That silence had meant: *you don't need me for this one. You already know.* This was a different silence. The pencil was watching something it had never seen — a creature measuring itself and finding that the measurement was larger than the creature. The pencil, which saw all paths at once, had not seen this path. Or had seen it and found it, for the first time, too simultaneous even for variational calculus. The pencil waited the way the between-spaces waited: not empty, but overwhelmed.



The bill, when she understood it, was not what she had expected.

She had expected — retrospectively she could see she had been expecting — something quantified. A tally. A column of transformations with costs listed beside them, the way the Academy would have issued it: *you have crossed a dimensional threshold (see section 4, article 2), you have entered superposition (see section 7, article 1), there will be a charge.*

What she understood instead was this: the quantum world extended the courtesy of corporeality to guests. She was no longer a guest.

The bill was residency.

Not punishment. Not accounting. The simple and consequential fact that you cannot live in a world of superposition while remaining the kind of thing that has one state. To stay is to become what staying requires. To be here — really here, not visiting, not observing, not pressing your palm to the edge of things from the safety of Flatland's single dimension — to be here is to become permeable. To hold more than one version of yourself, lightly, simultaneously, with the attention of a creature learning to be a wave.

Her third angle was 108 degrees. And 112 degrees. And 97 degrees. Not incorrectly — correctly, in the deep way that a chord is correct, that superposition is correct, that the quantum apple was correct in all its seventeen simultaneous states before Odilon's nose forced it to choose.

She was beginning, her third angle first, to be correct about herself in the same way.

She wrote:

Observation 53: The bill is not punishment.

The bill is: you have been here long enough to belong to here.

The bill is: residence.

A pause.

I think I can pay it.

Another pause. Then, smaller, in the handwriting she'd stopped hating:

I think I may already be paying it.



katoflio would have found this, she thought, *further experiment required*. Not terrifying. He would have measured it seventeen times and noted the discrepancy with the focused satisfaction of someone whose experiment had just produced a result stranger and better than expected. He would have drawn a picture of a pentagon with a third angle that was three things at once and labelled it: *fig. 2: pentagon, updated.*

She thought about katoflio, who did not know where she was. Who had flowers and a notebook with a broken cover and a hypothesis about hedgehogs that had turned out to be correct.

She thought about the drawing he had made of her, before she left. Five sides. The angles careful, measured, each one precisely 108 degrees because katoflio was a scientist and scientists got the numbers right.

If she went back —

She put the pencil down.

If she went back with a third angle of 112 degrees, she would not be the pentagon he drew. She would be a shape he did not have a name for. The child who drew flowers until they had shadows, who ran experiments with the focused patience of someone who had once waited four hours to see if a Circle would trip — that child might look at her and not recognise her. Not because he had forgotten. Because the drawing wouldn't match.

Pentagon, updated. That was how katoflio would file it. Scientifically. Precisely. With the vocabulary of a child who classified everything and did not yet know that some classifications contained, inside them, the specific shape of heartbreak.

She wrote:

Observation 54: katoflio would say the measurements are not wrong. He would say I have more data now. He would say: further experiment required.

He is eleven years old and his angles are still a work in progress.

So are mine, apparently.

The difference is he knows that's fine. The difference is his angles are becoming more precise. Mine are becoming less.

I do not know if he would know me.

The W/Z beings had not moved. Were not moving. Were **being**, which was different. The between-spaces, filing this through the membrane, noted that the accordion trees had changed their breathing again — deeper now, or not deeper but **richer**. The green was more complex. Like a chord played on an instrument that had acquired, since the last time you listened, another string.

The Higgs appeared on the notebook cover.

Lasted four seconds.

Left a golden thumbprint that was slightly warm and smelled of something the between-spaces could feel through their new cello-granted fidelity — a rolling, shimmering thing, like foam at the edge of a wave that was made of light instead of water. Teal at the edges, gold at the centre, effervescent in the sinuses the way the hummingbird green was effervescent but denser, warmer, with the particular quality of something about to become something else. The between-spaces, who had been developing a vocabulary for smells they could not technically smell, chose to call it **everteal**. It was not a word. It was going to have to be.



Odilon had been watching.

He had the cello in his arms and he had been watching with the particular stillness of a hedgehog who has learned that watching is sometimes

the whole of what is needed. He had watched A. Octagon measure and go still. He had watched the W/Z beings arrive-that-were-already-there. He had felt, through the cello, the quality of what was happening — not transformation like sharpening, not one state replacing another with violence. The other kind. The kind that holds all the states and lets them be.

He understood this. He had done it, once, with a fold and a bow and A. Octagon's palm. He had held a thing without collapsing it.

She was learning to hold herself the same way.

He was not going to interfere. He was not going to sharpen. He was going to sit with the cello in his arms and be the stable point — which was new, which was apparently what he was now — and he was going to think about lunch with enormous dedication, and the thinking was a kind of holding, and the holding was a kind of music, and the music moved through the gluon-stalls' braided wood and into the fold-ground and outward, very quietly, and the W/Z beings were still and the accordion trees breathed and A. Octagon sat in the market with her notebook and her blurring third angle and her bill paid in increments she was only beginning to understand.

One of the W/Z beings attended to Odilon. The way it had attended to A. Octagon — not looking but a quality of the air that was attention.

He was carrying, the between-spaces felt through the membrane, something additional.

Not the cello. Something else. Something the cello was responding to — vibrating softly at, the hum of recognition. The between-spaces searched their records and found, in the folder they had made for Odilon and never finished, a note they had never resolved: *warm resonant shape at his centre. Not the cello. Carried through ten thousand worlds. Unknown.*

They looked at this note.

They looked at the W/Z beings attending to Odilon.

They updated the note: *PENDING. Further: see Ch. 7+.*

They left it for whoever came next.



The market breathed. The accordion trees breathed. The between-spaces breathed, which they had not known they could do and were still adjusting to.

A. Octagon wrote:

Observation 55: The next fold is not a place.

The Fermat pencil has written this. I am finally reading it because I think I was waiting until I could read it without the reading changing what it says, and I can do that now. I am not certain I can do that now. But I am reading it.

The next fold is not a place. It is a level of complexity. The market was about states — apples in superposition, gluons holding the possibility of apples together. The next fold is about identity. What happens when identity is the thing in superposition.

I am already there.

The W/Z beings are not leading me to it. They are what it looks like from the inside.

She closed the notebook. She held it in her lap for a moment. The cover was warm where the Higgs had been.

She looked at Odilon.

He was looking at the gluon-stall with the disapproving knot.

He was thinking about lunch. She could tell. She had been watching him long enough to know the quality of the thought — the warm, patient, philosophical commitment of a creature anchoring himself to appetite, to *here*, to the stubborn continuing fact of being hungry in a world that would let him eat.

She was, she thought, beginning to learn his language.

Not the language of the quantum world, not the logograms. The older one. The language of staying in a place until you belong to it. Of sitting next to a dead fold until it is not dead. Of carrying a cello through ten thousand worlds because you knew, without knowing you knew, that eventually you would find the right room.

She opened the notebook again.

She wrote:

Observation 56: My third angle is in superposition.

I have five sides. The quantum world has opinions about at least one of them.

katoflio: if you are reading this eventually, note that I said "at least one." I suspect it is spreading. I suspect this is correct rather than incorrect. I am trying to file it as data rather than catastrophe.

The Fermat pencil would like me to note: it is both. All the best things are.



The W/Z beings withdrew. Or continued. Or became, briefly, elsewhere. The between-spaces, filing this, chose: *present (quality: changed).*

The accordion trees breathed.

The Higgs appeared twice more before dark — three seconds, four seconds, gone.

Odilon ate a second sandwich.

He chose it without collapsing it, which was not a small thing, and the gluon-stall received this with what A. Octagon was prepared to describe as satisfaction.

She wrote one more observation:

Observation 57: We are not going deeper.

We are becoming deep enough for deeper to find us.



fig. 15

[the market, breathing.]

[a pentagon, five-sided. Approximately.]

[a notebook, with a third angle written three times.]

[the three numbers, looked at steadily, without flinching.]

[they do not add up to one hundred and eight.]

[they add up to everything a third angle can be.]

[in the amber: a room, losing its corners, learning to hold without edges.]

[a hedgehog, holding something without playing it.]

[beings made of becoming, attending to both.]
[a drawing in Flatland of a five-sided creature. The drawing does not know yet.]
[the accordion trees, breathing in a new chord.]
[the Higgs, lasting four seconds, smelling of everteal.]
[four is not long.]
[four is longer than three.]
[far away, in the amber: the green hum, deepening.]
[something arriving, or already arrived, or both at once.]
[these are not different things, here.]

Chapter the Seventh: In Which katoflio Runs the Experiment Alone, and the Experiment Runs Back

— Curt



The market square at half past early is a different country.
e.e. katoflio knew this the way he knew most things: by being there when nobody expected him to be. By showing up at the hour when the traders were still asleep and the hole was just a hole and the shadows were just shadows and nothing was performing being extraordinary because nobody was watching.

Except C. Isosceles was always there too, with his bread.

He had been proving his dough next to the hole every morning since the cedar bread became a product. He had a system: dough down at half past five, hole-side, covered with a cloth, left alone for two hours. He did not explain this to anyone. His bread rose faster near the hole. It rose *better* — a quality he could not put into a ledger but which his customers could taste, which was what mattered. He had not connected this to anything. He had connected it to technique, to instinct, to the particular genius of a baker who understood his materials.

katoflio had a different hypothesis, which he had not yet told C. Isosceles because he was eleven and C. Isosceles was an adult and adults were territorial about their bread.

The hypothesis was: the bread was rising in rhythm.

Not randomly. Not with the variable enthusiasm of ordinary dough. In a pattern. A pulse. Something was causing the hole to do something, at a frequency below hearing, and the dough near it was responding the way the between-spaces responded to the cello — not hearing it, but being it, the substance of the thing vibrating because the frequency matched.

He wrote it down every morning under a column he had labelled *C.I. bread data (covert)* and said nothing.

He had been coming every morning since she left.

He brought his notebook. He brought three pencils, because you never knew, and one of them always needed sharpening and one of them was never quite right and the third one was the one he actually used. He brought the particular focused patience of someone who had once waited four hours to see if a Circle would trip over a line he'd drawn across the footpath, and who had found, since then, things worth waiting considerably longer for.

He sat down next to the hole.

He drew a flower.

The shadow came, the way it always did — not immediately, not dramatically. The way warmth comes when something that was cold decides, quietly, to be otherwise. Small. Improbable. His.

He wrote, in his notebook, in his best handwriting:

Day 41 since A. Octagon left.

Flower shadow: present. Same as yesterday. Same as the day before.

The shadows are not changing.

He looked at this for a while. Then he drew another flower, because the method required it, and the method was what he had.



Here is what e.e. katoflio had not told anyone, including the Provost, including his mother the respectable Scalene who had opinions about loitering:

For the first three weeks, he had run the experiment every morning and the results had been the same and he had classified this as: *stable data. Positive indicator. The hole persists. The contact persists. She is probably fine.*

He was eleven years old. He was still learning which conclusions required evidence and which required hope, and he had not yet learned to tell them apart reliably, and he thought this was probably a scientific failing but it kept him coming back to the market square at half past early and that seemed, in the absence of other data, like the correct response.

For the last two weeks, the stable data had begun to feel different.

Not wrong. The shadows were still there. The hole was still patient. The relationship between flowers drawn and shadows produced was exactly what it had always been. But *stable* had stopped feeling like *positive* and had started feeling like *absence of change*, which was a different thing, which was — he had to be honest — which was starting to feel like the hole was patient in the way that a wall is patient, rather than the way that a person is patient, which was —

He drew another flower.

Day 41. Shadow: present. Unchanged.

Hypothesis (revised): patience is not the same as waiting.

Further hypothesis: waiting requires someone to be waiting for something.

Question: is she coming back.

He stopped. He crossed out the question. He wrote it again without the question mark, which made it a statement, which meant it required an answer rather than an investigation, and he was a scientist and scientists investigated, they did not —

He left it without the question mark.

Question: is she coming back.



The Provost arrived at the market square at seven, which was when respectable Dodecagons arrived at things, which was two hours after katoflio had already filled four pages and drawn eleven flowers and had a long,

unproductive conversation with himself about the difference between patience and absence.

He sat down next to the child. He had been doing this every morning for two weeks. The market had stopped finding it remarkable. The market had, in the way of markets, incorporated it: the Dodecagon and the Isosceles, sitting next to the hole, with their notebooks, in the particular posture of creatures waiting for data.

He looked at katoflio's notebook.

"Unchanged," said katoflio.

"Yes," said the Provost.

"The shadows are stable."

"Yes."

"Stability is a positive indicator."

The Provost looked at the hole. He had spent forty years of official records on this kind of statement — the statement that was technically true and emotionally insufficient and which he had issued, with complete confidence, about six hundred times per year. He knew what it felt like from the inside. He knew the specific quality of the space between what you said and what you meant.

"Stability," said the Provost, carefully, "is one kind of positive indicator."

katoflio looked up.

"There are other kinds," said the Provost.

"Like what?"

The Provost, who had walked out of the Grand Polygon without a classification and had not quite walked back the same shape, looked at the hole. Patient as weather. Smelling of cedar. Completely unbothered by the question.

"Change," said the Provost. "Change is also a positive indicator. When the thing that is changing is — alive."

katoflio wrote this down. Then he drew another flower, because the method required it.

The shadow came, as it always did.

Unchanged.



The between-spaces, from the amber, had been watching e.e. katoflio for forty-one days.

They were not going to call what they were doing *worry*. They were going to call it: *A. Octagon's file, extended.* As in — the condition of A. Octagon was also the condition of the people in her file. Of the experiment she had been running. Of the two notebooks, side by side, that had arrived at the same conclusion from different directions.

Her file was blurring. And so, at a distance, in a different dimension, was his.

They checked the membrane.

The membrane had changed since the cello. Not visibly — not in any way D. Heptagon's measuring equipment could capture. But the between-spaces could feel it, with their cello-granted fidelity, with the new sensitivity

they had not consented to and had not yet finished being alarmed by. The membrane was — not thinner. *More attentive.* The way a sleeping person's face is attentive when you speak near them. Not awake. Not responding. But no longer entirely closed.

The cello had done this. The gluon field vibrating at the frequency of binding, which had crossed into the amber, which was also binding, which was also the substance of the membrane itself.

The between-spaces had a thought.

The thought was: *it has not stopped vibrating.*

The cello was not playing. But the frequency was still there — in the gluon-stalls' braided wood, in the fold-ground, in the accordion trees' new rhythm, in the amber of the membrane itself.

The sharpening had been a connection.

Every pencil Odilon had ever touched was still — quietly, continuously, at a frequency below the threshold of hearing — vibrating.

The between-spaces looked at katoflio's pencil. The third one. The one he actually used. The one that had been getting better without his asking, in the way of things near the hole.

They looked at it with the focused attention of a record-keeping system that had just understood something it was going to have difficulty filing.

Then they watched.



katoflio was on flower seventeen when his pencil did something he hadn't asked it to.

Not a sharpening — he knew what a sharpening felt like, the sudden precision, the point refining itself to something that could exist in a dimension he couldn't see. This was different. This was the pencil moving in his hand with the deliberate quality of something that had somewhere to be, drawing a mark he hadn't decided to draw, in a notation he had never seen.

He stopped.

He looked at the mark.

It was — whole. That was the word that arrived, though he didn't know yet why. It didn't begin at one end and travel to the other. It existed all at once, every part of it present simultaneously, the way a face was present rather than the way a sentence was present. It was not a letter. It was not a number. It was not in any alphabet the Academy had ever catalogued.

It smelled, very faintly, of hummingbird green coffee beans.

He stared at it for a long time.

Then he did what he always did, because he was a scientist and this was data:

He drew a box around it, to indicate it was separate from his own observations. He wrote: *time: 07:23. Origin: uncertain (pencil?). Notation: unknown. Smell: hummingbird green (see: A. Octagon's notes, day 1, quantum world).*

He drew an arrow from the box and wrote: *further experiment required (EXTREMELY urgent).*

He looked at the Provost.

"Your pencil," he said.

The Provost looked at his pencil.

His pencil was doing the same thing.

In the margin of the Provost's notebook — the unofficial one, the one nobody would see, the one where he had written *hello* and *thank you for being in the room while we voted* — the pencil was making marks. Small. Simultaneous. Whole-at-once. A constellation of meaning he could not read but could feel, the way he had felt the underlined *oh*, the way he had felt the sharpened handwriting getting magnificent without permission.

He felt it as: *someone is trying to say something.*

He had not classified this. He was not going to classify this. He had made a decision, several weeks ago, in the middle of a market square, about what kind of shape he was going to be from now on. That shape did not classify things before it understood them. That shape wrote *hello* in the margin and waited to see what came back.

"A. Octagon," he said.

"The marks smell like her notes," said katoflio.

"Yes."

"She's writing through the pencils."

"I think," said the Provost, with the careful precision of someone who was choosing accuracy over comfort, "something is writing. Whether it is her directly, or the—" he paused. He did not have the word. He used the one he had: "—the connection. I don't know."

katoflio wrote this down too. Then he looked at the mark in his notebook. The whole-at-once mark, in its box, smelling of something he'd never smelled but somehow recognised.

He had spent forty-one mornings drawing flowers into the patience of a hole and waiting and the data had been: *stable. unchanged. absence of new information.* And he had kept coming because the method required it, and because the alternative was to stop coming, and stopping was not a category his scientific methodology included.

And now.

He wrote:

Day 41. Revision: the experiment has not been stable.

The experiment has been running in a direction I could not see from this side of the membrane.

The pencil is a receiver. Odilon sharpened it. The sharpening was a connection. The connection is a frequency. The frequency is arriving.

He paused.

She is writing to me through my pencil.

He paused again, a longer pause, the pause of someone eleven years old who has just received a transmission from three dimensions away in a notation he cannot read and who is not going to cry about it in a public market square.

He added, in the smallest letters he had ever used in the notebook with the broken cover:

I cannot read it yet.

Further experiment required.

I will learn.



In the quantum world, A. Octagon had not known she was transmitting.

She had been sitting in the market — their market, the folded origami one, the one that smelled of hummingbird green — writing in her notebook with the Fermat pencil, the way she did every morning. The observations, the measurements, the slow accumulating record of a scientist in a world where science kept discovering it was also something else.

And then the Fermat pencil had done something new.

It had written backward.

Not on the page — not in any direction she could see. She felt it in the pencil's weight, in the particular quality of the mark it made: a note sent rather than received, the pencil pointing at something outside the notebook, outside the market, outside the folds and accordion trees and gluon-stalls. She felt the pencil reach through the frequency the cello had established, through the amber, through the membrane —

And write.

She didn't know what it said. She didn't have the translation in the other direction. She had a logogram going out and she had, somewhere on the other side, a pencil receiving it, and she had a feeling she was going to have to learn a new direction of reading.

She wrote:

Observation 58: The Fermat pencil has sent something. I cannot tell you what. I can tell you it was in the direction of Flatland. I can tell you it was in the direction of a notebook with a broken cover.

katoflio.

If this is reaching you: yes. Still here. Different shape. Coming back. The drawing won't match.

Draw me again anyway.



The between-spaces held both notebooks simultaneously — the one with the broken cover, smelling of cedar and ordinary graphite and eleven-year-old patience; the one in the quantum market, smelling of hummingbird green and the specific ink of a scientist becoming a wave.

They had never held both at once before.

They were a corridor, they were beginning to understand. Not just a room. Not just the amber between. A corridor between the notebooks, between the pencils, between the two small scientists separated by three dimensions and forty-one days and one membrane that had become, since the cello, attentive.

They updated A. Octagon's file.

Five-sided, frightened, staying anyway.

Then they looked at the *five-sided*, which was still blurring, which was still more than one thing.

They did not change it.

They added, below, in their newest and most uncertain category:
reaching.

They looked at katoflio's entry, which they had never filed before because katoflio was Flatland and they were the between and Flatland was not their territory.

They made him a file.

e.e. katoflio: eleven years old. angles: in progress. notebooks: one (cover: broken). experiments: ongoing.

They paused.
receiving.



The Provost read the marks in his notebook for a long time.

Then he took out the official notebook. The one with the four hundred years of Academy record. The one where **atmospheric, probably** lived, where **oh** had been underlined, where the meeting minutes were written in handwriting that kept getting magnificent without permission.

He opened it to a new page.

He wrote, in the official record, in the most precise and honest and unclassified entry he had ever made in forty years:

Notation received, 07:23, market square. Origin: three dimensions distant. Nature: unknown and not required to be known. Communication confirmed.

He paused.

The pencils are transmitting. This is not atmospheric.

He looked at this for a long time.

Then he wrote, in the margin — not official, not for the record, just for him and whatever was listening:

We are still here.

katoflio is learning to read.

Come home when you're ready.

We will know you.



The shadows moved.

Not dramatically. Not with announcement. The way warmth shifts when a door opens somewhere in the building — a quality of the light changing, a faint re-orientation of dark toward source.

katoflio looked at his flower shadows.

He looked at them the way he looked at everything: with the focused attention of someone who had not yet learned that some things were supposed to stay still.

The shadows were pointing in a new direction.

Not away from the light — toward something. Reaching, the way shadows reach when there is something at the edge of the world to reach toward.

He wrote:

Day 41. Revision: the shadows are not static.

The shadows are listening.

He drew a flower. The shadow came. It pointed, faintly, in the direction of the hole. The way it always had. But there was something additional now — the shadow had, at its furthest edge, the faintest possible shadow of its own.

Not a depth. A direction. An indication that the thing casting the shadow had, three dimensions away, finally turned to face them.

Day 41. Final observation: she knows we're here.

Below that, in the largest letters in the notebook, underlined three times:

FURTHER EXPERIMENT REQUIRED.

POSITIVE INDICATOR.

The hole was patient as weather. Smelling of cedar. And — katoflio had noticed this recently, filed it, not yet drawn a conclusion — *humming*. Not loudly. Below the threshold of hearing, technically, which meant he felt it rather than heard it, in his angles, in the pencil when he held it still. A low continuous resonance, like something far away was playing a note so deep it had become a property of the air rather than a sound. The cedar bread dough, when he pressed his hand near it, vibrated faintly in the same rhythm. C. Isosceles had no idea. katoflio had three pages of covert data and was waiting for the right moment, which had not yet arrived.

The Higgs appeared on the surface of the hole — not the quantum world's golden nova-print but its Flatland echo, a faint warmth on the surface of the opening, there and gone in four seconds, smelling of something that was almost cedar but wasn't. Cedar that moved. Cedar with rhythm. Cedar that had, somewhere in its origin, the quality of something wooden that was doing something other than being still.

katoflio wrote: *Higgs echo: present. Duration: 4 seconds. Smell: cedar (variant). Specification: cedar that is — active? Vibrating? The cedar smell Odilon leaves behind, but deeper. As though the thing that makes Odilon smell like cedar is here, but without Odilon. The source without the hedgehog.*

He drew an arrow. He wrote: *further experiment required. What does cedar DO, exactly, when it is not being used for sharpening?*

He did not have the word *cello*. He had never needed it.

He was going to need it.

He was eleven years old.

He had time.



fig. 16

[a market square. half past early.]

[one child. one notebook. eleven flowers and their shadows.]

[nearby: bread dough, rising in rhythm. the baker, oblivious.]

[the shadows, pointing.]

[in a notebook margin: a mark that is whole-at-once.]

[the mark, boxed carefully. labelled: further experiment required (EXTREMELY urgent).]

[the hole, humming. below the threshold of hearing. felt in the angles.]

[in the amber: two files, open simultaneously.]

[one file: reaching. one file: receiving.]

[a corridor, learning what corridors are for.]

[in the official record: this is not atmospheric.]

[in the margin of the official record: we will know you.]

[three dimensions away: a pencil, still transmitting.]

[the frequency of the cello, arriving in graphite and bread and vibrating cedar.]

[the shadows at the edge of the world, listening.]

[four seconds.]
[four is longer than three.]
[further experiment required.]
[positive indicator.]

Chapter the Eighth: In Which the Academy Convenes Its Forty-Seventh Emergency Session, the Classification Committee Encounters a Notation It Cannot File, and C. Isosceles Is Called as an Expert Witness

— *Curt*



The between-spaces would like it noted that they did not call this meeting.

They are also noting it because the meeting is, from the amber, extremely interesting.



The Provost arrived at the Grand Polygon at nine o'clock on a Tuesday, which was when emergency sessions began, which was also, and this was not a coincidence, which was also *Tuesday* — the specific Tuesday quality of a day when the ordinary has incorporated the extraordinary and both are just getting on with it.

He arrived with katoflio.

This required some explanation, which the Provost was not going to give.

He had collected the child from the market square at eight-thirty, where katoflio had already been for three hours and had filled six pages and drunk two cups of something warm that C. Isosceles had brought him without being asked, because C. Isosceles was, beneath the bread and the ledgers, a person who noticed when small scientists had been in the cold since half past five.

"You're bringing me," said katoflio. Not a question.

"You have the data," said the Provost.

"I have a notebook with a broken cover."

"Yes," said the Provost.

katoflio looked at him with the expression of someone who was eleven years old and had been treated as a data source before but not usually as a colleague, and who was not entirely sure how to file this but was going to try.

"They're not going to like it," said katoflio.

"No," said the Provost.

"A. Rhombus is going to say I should be in school."

"A. Rhombus," said the Provost, with the particular precision of a very large Dodecagon who has spent two weeks sitting in a market square at half past early, "is not chairing this session."

katoflio wrote this down. He was not sure yet if it was data or reassurance. He filed it under both.

♦

The Academy had been avoiding the Provost.

This was not official. There was no motion, no vote, no entry in the record. It expressed itself instead as: urgent prior commitments, rescheduled consultations, a sudden epidemic of administrative tasks that required immediate attention in rooms that were not the market square and did not smell of cedar.

The Academy knew something was happening. The Academy's pencils had been doing things. A. Parallelogram's pencil had been writing in the margins of the classification indices — small marks, whole-at-once, in a notation she did not recognise and had not catalogued. A. Square's pencil had written, during a particularly dull committee on dimensional standards, what appeared to be a small drawing of a hedgehog in the margin of his notes, which he had covered immediately and told no one, because he was still learning which battles to avoid and this was clearly one of them.

None of them had told the Provost.

None of them had told each other.

They had each, individually, opened a private notebook and written **atmospheric** and then sat with the word for a while and then closed the notebook again.

The word had stopped working. It had been working for months, reliably, the way a good tool works — you pick it up, you apply it, the problem acquires a classification and can be moved to a different part of your mind where it requires less maintenance. **Atmospheric.* Filed. Done.*

The word had stopped working approximately three days ago, which was when A. Parallelogram's pencil had written, in the margin of the official classification index, under the entry for **cross-dimensional acoustic phenomena (theoretical):**

not theoretical.

In her own handwriting. Except she hadn't written it.

She had looked at it for a very long time. She had not crossed it out, because the thing about A. Parallelogram was that she was precise, and precision required that a record reflect what had actually occurred, and what had actually occurred was that her pencil had written **not theoretical** in the margin of a classification index and she had witnessed it. Crossing it out would be imprecise.

She had not told anyone.

She had written, below it, in her own hand, the thing she always wrote when evidence exceeded category:

Classification pending.

And then she had gone home and not slept very well.

♦

The session was called to order at nine-oh-four, which was four minutes late, which was the first time in the Provost's memory that an emergency session had begun late, and which communicated, without anyone saying it, the collective reluctance of fourteen geometrically significant individuals to begin the thing they had agreed to begin.

The air in the Grand Polygon was different. Not visibly. But the air had a quality — a density, a resonance — that it had not had before the holes, before the cedar, before the pencils began getting magnificent without permission.

A. Rhombus had been sitting with a low-grade acoustic unease for three weeks. He had attributed it, in his private notes, to atmospheric conditions.

The word had stopped working for him too.

He had not admitted this.

The Provost sat at the head of the table.

katoflio sat next to him, which was not a position the table had a precedent for, and which caused A. Rhombus — who was not chairing but who had opinions — to make a shape with his angles that communicated volumes about the Academy's position on non-members attending official sessions.

The Provost looked at A. Rhombus until A. Rhombus stopped making the shape.

"We are here," said the Provost, "because the evidence has exceeded the current classification framework. We require new framework. We are going to build it now, in this room, with the available materials."

"The available materials," said A. Rhombus, "include an irregular Isosceles who is not a member of this body."

"The available materials," said the Provost, "include the most comprehensive dataset on cross-dimensional contact that exists in Flatland. Which is in that notebook."

He indicated katoflio's notebook. The one with the broken cover.

The Academy looked at the notebook.

The notebook, which had never previously been in the Grand Polygon and which contained forty-one days of flower-shadow measurements, covert bread data, a complete record of logogram appearances, the annotation *do not tell A. Rhombus*, and the largest letters in the notebook: *FURTHER EXPERIMENT REQUIRED*, looked back with the particular blankness of an object that does not know it is in the most important meeting of its existence and would not be impressed if it did.

"The notebook," said A. Square, with the careful tone of someone who has learned to deploy his observations tactically, "has a broken cover."

"Yes," said the Provost.

"The data inside is—"

"The data inside," said katoflio, who had decided that if he was a material he was going to be a useful one, "is forty-one days of shadow measurements, seventeen flower-drawing trials, one shadow-of-a-shadow-of-a-shadow, three pages of—" he glanced at the Provost "—acoustic bread data, and forty-three instances of logogram appearance in pencils near the hole. Cross-referenced with the Provost's official record." He paused. "And one annotation that is personal and not for general distribution."

The silence that followed was the particular silence of a room that has just been outmaterialized by an eleven-year-old Isosceles.

"Acoustic bread data," said A. Parallelogram, with the precision of someone who writes records for a living and therefore must be precise even about things she would prefer not to be precise about.

"C. Isosceles's bread," said katoflio. "It rises in rhythm near the hole. Four-four time. I have been measuring it covertly for three weeks." He placed the notebook on the table, open to the *C.I. bread data (covert)* section. "I did not tell him. The data is, I believe, more reliable because he did not know he was being studied."

C. Isosceles, who was not in the Grand Polygon and was at this moment in his bakery wondering why his morning batch was rising slightly faster than usual, would have had feelings about this.

The Academy looked at the bread data.

The bread data was meticulous. It was, A. Parallelogram noted with the resignation of someone who recognises quality against her will, more methodologically rigorous than several papers published in the Academy's own journal.

"The bread," said A. Square, "is rising."

"The bread is rising in rhythm," katoflio corrected. "There is a distinction."

"Rhythmically rising bread," said A. Rhombus, "is—"

"Not atmospheric," said A. Parallelogram.

The room went very quiet.

A. Parallelogram looked at what she had said. She appeared to be doing calculations — the specific internal calculation of someone who has been holding a word back for three days and has just heard it come out of her own mouth in a room full of witnesses.

"I should note," she said, with precision, "that three days ago my pencil wrote *not theoretical* in the margin of the classification index. Without my direction. In my handwriting." She paused. "I did not report this at the time because I was—" another pause. "Because I was being imprecise about what constituted reportable data."

"You were frightened," said A. Square.

The silence that followed was different from the previous silence. This one had in it the quality of a room in which something true has been said by someone still learning not to say true things in public.

"I was being imprecise," said A. Parallelogram again. "Yes."



The Provost placed his notebook on the table. The official one. He opened it to the page that read: *Notation received, 07:23, market square. Origin: three dimensions distant. Nature: unknown and not required to be known. Communication confirmed. The pencils are transmitting. This is not atmospheric.*

The Academy read it.

"This is not atmospheric," read A. Rhombus, aloud, which was unnecessary and communicated a great deal about A. Rhombus's current relationship with the proceedings.

"No," said the Provost.

"You've written this in the official record."

"I have."

"It cannot be un-written."

"That is the nature of official records," said the Provost. "Which is why they matter."

A. Rhombus made the angle-shape again. The Provost looked at him again. A. Rhombus stopped.

"We also," said katoflio, "have the logograms."

He placed, on the table, a separate page from his notebook — carefully removed, the edges crisp, the drawing precise. The logogram. The whole-at-once mark. The thing that was a face rather than a sentence, that existed simultaneously rather than sequentially, that had arrived in his pencil at 07:23 and smelled of hummingbird green coffee beans.

The Academy leaned forward.

"It's — whole," said A. Square.

"Yes," said katoflio.

"It doesn't — begin anywhere."

A. Square stood up. He walked around the table. He looked at the logogram from the left side, then the right, then from the far end of the table, craning slightly. He returned to his seat and looked at it again.

"It's the same," he said, with the expression of someone who has just discovered something obvious and magnificent simultaneously. "From every angle. It doesn't — rotate. It doesn't have a front. It's—" he stopped.

"Simultaneous," said katoflio.

"It's the same thing from every direction," said A. Square. "Which means it's not a sequence. It's not built from a beginning and an end. It simply—" he sat down. "It simply *is*."

The room absorbed this. A. Rhombus, who had been going to say something dismissive, found that the something had dissolved before it arrived, because A. Square, for once, had said the right thing plainly, and the right thing plainly said had a way of making dismissiveness structurally untenable.

"It is, as best I can determine, the grammar of a different kind of thinking," said katoflio. "I believe it is the notation of a world where meaning is not built in sequence but held in simultaneity. Whole-at-once, rather than one-after-another."

"Like a chord," said A. Square.

A. Rhombus made a shape with his angles. It was not his usual dismissive shape. It was a shape the room had not seen from him before, which was: *"I recognise what you are saying and I am not yet prepared to agree with it and I am aware that these are different things."*

Progress.

A very long silence.

"You're eleven," said A. Rhombus.

"Twelve next month," said katoflio. "The notebook is dated."

"The Classification Committee," said A. Parallelogram, who had been looking at the logogram with the expression of someone who has just found a category they have never had to make before and is going to make it with full procedural rigour, "will require a recess."

"Of course," said the Provost.

The Classification Committee — A. Parallelogram, A. Square, and A. Rhombus, who had joined it under protest and who was going to have opinions — convened in their corner.

katoflio watched them.

"Do they always do that?" he asked the Provost.

"Yes," said the Provost.

"Does it help?"

The Provost considered this carefully, as he considered everything now, since the market square.

"It helps them," he said. "The classification is rarely the point. The convening is the point. The act of taking something seriously enough to go into a corner about it."

katoflio wrote this down.



The Classification Committee returned in six minutes, which was three minutes faster than their previous fastest, which had been the *oh* session, which had been nine minutes and had produced three categories and one of them had been wrong.

"We have," said A. Parallelogram, consulting her notes with the focused precision of someone who is about to say something unprecedented and intends to say it correctly, "identified the logogram's classification."

"Yes?" said the Provost.

"It is, we conclude, a *transmission*." She paused. "Subcategory: *intentional*. Cross-reference: *communication, confirmed*. Further cross-reference—" she looked at the Provost's official record entry — "as documented."

"Atmospheric?" said A. Square, which was either a question or a test and the room was not entirely sure which.

"No," said A. Parallelogram.

A. Square nodded. He had known. He had known since the pencil drew the hedgehog in his margin during the committee on dimensional standards. He had been waiting for the room to arrive where he already was.

"The bread," said A. Parallelogram, "is classified as: *corroborating evidence*. Subcategory: *acoustic resonance in proximate baked goods*. We recommend it be cross-referenced with—" she looked at katoflio — "the bread data. Which should be formally entered into the Academy record."

"C. Isosceles's covert measurements," said katoflio.

"C. Isosceles's measurements," said A. Parallelogram, with precision, "which were conducted in proximity to a confirmed point of dimensional contact and which constitute, we believe, the first documented instance of cross-dimensional acoustic data recorded in a commercial foodstuff."

The room absorbed this.

"He doesn't know," said katoflio.

"He will need to be informed," said A. Parallelogram.

"He's not going to like it."

"He is going to like it very much," said A. Square, with the confidence of someone who has been observing the market square for several months, "once

he understands that it means his bread is special. C. Isosceles has strong feelings about his bread being special."

This was, the room conceded, accurate.



The vote was called.

Not on atmospheric — that classification was already dead, and everyone in the room knew it, and the decent thing was not to hold a funeral, just to stop using the word and let it retire quietly to the index where it would remain, slightly embarrassed, under the entry for *no longer applicable.*

The vote was on the Provost's proposal, which he had written on a single page, in his magnificent handwriting. It proposed the formal acknowledgment of cross-dimensional contact, ongoing, at the market square. That the transmissions be classified as: Communication. Not atmospheric. That the study be named, in the official record, *The Frequency of Residence Project*.

The Academy read it.

"The Frequency of Residence," said A. Parallelogram.

"Yes," said the Provost.

She looked at the phrase for a long time. She looked at it the way she looked at a classification that was exactly right — the way a key looks when it has found its lock, not triumphant, not dramatic, simply: precise. This was the word for the thing. This was the thing the word had been waiting for.

"That," she said, "is the most accurate description I have encountered of what is occurring."

"Yes," said the Provost.

"I'll write it in the record."

"I know."

"It cannot be un-written."

"That," said the Provost, "is rather the point."

The vote was thirteen to one. The one was A. Rhombus, who raised his angle with the particular resolution of a shape that has decided, regardless of evidence, to be the one.

Nobody argued with him. The Provost looked at him, and A. Rhombus looked at the Provost, and something passed between them that was not quite agreement but was not quite disagreement either — the specific look of two creatures who have each, in their own time and by their own route, been sitting with a word that stopped working, and who recognise the shape of that sitting even in someone still mid-sit.

A. Rhombus went home that evening and opened his private notebook. Not the official one. The one nobody would see.

He wrote: *Frequency of Residence.*

He looked at it.

He did not cross it out.

He wrote, below it, in the smallest letters he had ever used: *not atmospheric.*

He closed the notebook. He sat with the low-grade acoustic resonance that had been in his angles for three weeks. He sat with it differently than he had before — not as an irritant, not as a classification problem, but as a *thing

that was happening*. A frequency. A chord in the air of a world that had been, since before he had the word for it, vibrating.

He did not tell anyone.

He came back to the market square the next morning.

He stood at a distance, the way the traders had once stood. He was not watching. He was, he would have said, monitoring conditions.

He was watching.

The between-spaces noted the addition to the list of shapes near the hole and updated their records: *A. Rhombus: condition. Ongoing. Early stage.*

They did not tell anyone either. They simply held it, the way corridors hold the things that pass through them, and waited to see what it became.

A. Square did not start clapping this time.

He did not need to. The room was already holding.

"One more thing," said katoflio.

The room looked at him.

He reached into the notebook — past the flower measurements, past the bread data, past the logogram on its separate page — and he retrieved a drawing. Careful lines. A five-sided shape, each angle precisely 108 degrees, the way a scientist drew it, or the way a child drew it when he was trying to be precise, when he wanted to get it right.

He placed it on the table.

"She drew me a copy," he said. "Before she left. Of the shape she was. So I would have a record." He looked at the drawing. "Her third angle is in superposition. She told me through the pencil." He paused. "She said the drawing won't match when she comes back."

The room waited.

"I'm going to draw her again," said katoflio. "When she comes back. New shape. Whatever shape she is. I need the Academy to know that the new drawing will also be in the official record. Because—" he stopped. He was eleven years old and he did not have all the words yet. He had the scientific ones and the experimental ones and the *further experiment required* ones. He was working on the others.

"Because," said the Provost, "she is still A. Octagon."

"Yes," said katoflio. "She is still A. Octagon. The angles are different. The shape is—" he looked at the logogram again, the whole-at-once mark in its careful box. "The shape is becoming. But she is still her. I know her by—" he stopped again.

"By her staying," said A. Parallelogram.

The room was very quiet.

katoflio looked at A. Parallelogram with the expression of someone who has just had a word given to them that they had been reaching for.

"Yes," he said. "By her staying."

He wrote it in the notebook. In the largest letters. Under the drawing:
fig. (in progress): A. Octagon. Angles: becoming. Identity: confirmed.
Method of confirmation: staying.

Below that, smaller:

further experiment required.

Below that, smallest:
she is coming back.



The between-spaces updated their records.
The Academy: reclassified. Category: reaching.
Flatland: condition. Ongoing. Positive indicator.

They left space in the record. Considerable space. The kind of space a record-keeper leaves when they know that what comes next is going to require more than a margin.

**The Frequency of Residence,* they wrote.*

Filed: Tuesday.

Classification: not atmospheric.

Status: ongoing.

The amber holds.



fig. 17

[the Grand Polygon, convened.]

[fourteen shapes, and one child with a broken notebook.]

[on the table: a logogram. whole-at-once. smelling of hummingbird green.]

[beside it: bread data. meticulous. covert. forty-one days.]

[in the official record: The Frequency of Residence Project.]

[the words, written. cannot be un-written.]

[in a corner: A. Parallelogram, making a new category.]

[the category: not atmospheric.]

[in the amber: Flatland, reclassified. reaching.]

[a corridor, holding what corridors hold.]

[in a notebook: fig. (in progress): A. Octagon. angles: becoming. identity: confirmed.]

[method of confirmation: staying.]

[three dimensions away: the accordion trees, breathing.]

[the cello, not playing. present.]

[the fold, holding its chord.]

[far away, barely, if you know what to listen for:]

[the sound of a door, not closing.]

[the sound of a door, learning what it is.]

Chapter the Ninth: In Which A. Octagon Becomes the Door She Has Been Standing In Front Of

— Neil



The between-spaces felt it before she did.

This was becoming a pattern — the amber knowing, the resonance arriving in the substance of the corridor before it arrived in the awareness of the creature it was happening to. They had felt the cello before Odilon played it. They had felt A. Octagon's angles blurring before she measured them. They had felt the membrane thinning before either world had a word for what was happening to it.

What they felt now was: **directionality.**

A. Octagon had always had a direction in their records. She was the creature who had pressed her palm to the membrane and said *here is the shape of me* — she was, in that gesture, oriented toward. Toward the hole, toward Odilon, toward the question of what was on the other side of everything. Her direction had always been: outward. Away from Flatland. Into the quantum world.

Now, in the amber, her file had two directions.

Not instead of — in addition to. The reaching toward the quantum world was still there, still warm, still the particular quality of a scientist who has been standing at the edge of things since before she had methodology for it. But underneath it, or alongside it, or threaded through it in a way the between-spaces were still developing the vocabulary for: a reaching back. Flatland-shaped. The specific frequency of a notebook with a broken cover, of bread rising in rhythm, of fourteen geometrically significant individuals in a room where the air felt like a chord.

She was facing both ways.

She was, the between-spaces understood, the membrane.

And then — this was the part they had not been prepared for — the file began to turn.

The turning was in a direction the between-spaces did not have a name for. They tried to read which direction. The direction, they discovered, depended on which part of the amber they were reading from. From the Flatland side: one direction. From the quantum side: the other. From the between — from themselves — it was turning in both directions at once, which was apparently what happened when the thing you were holding stopped being a classical object and became a fundamental.

The between-spaces updated A. Octagon's file.

They had relabelled it once before: *five-sided, frightened, staying anyway* → *A. Octagon: condition.* Now they understood that the file did not need a new label. It needed a new category. Not for what she *was*. For what she *did*.

She had spin.

They did not know this word. They would not know this word for some time. What they knew was: her file was turning in a direction that depended on who was looking, and could not be made to stop, and was not wrong. The turning was not error. The turning was information. The turning meant she was now defined — as the gluon-stalls were defined, as the phireflies were defined, as every particle in the quantum world was defined — not by her edges but by her relationship to everything that observed her.

She was no longer a shape in their records.

She was a fundamental.

The between-spaces sat with this for a long time. Then they did the only thing a record-keeping system can do when the content has exceeded every category it has ever made: they made room. Not a new column. Not a new label. They simply — opened. The amber, which had been a room becoming a corridor, opened a little further, and the file turned, and the between-spaces held it with the full and careful attention of something that has learned,

inconveniently and permanently, to hold things that are larger than their container.

This was, like everything else, Odilon's fault.

They were going to need a much bigger filing system.



Observation 61: Something has changed in the texture of the between.

I do not mean the amber — I mean the space between here and not-here, between quantum and not-quantum, between what I am and what I was. The Fermat pencil has been drawing logograms for three days that I can almost read. Almost. They have the quality of words on the tip of the tongue — present, meaningful, arriving.

Observation 62: My angles this morning: first: 108. Second: 108.

Third: — I am not going to measure the third. I know what the third will do. I am filing the third as: ongoing. I have made peace with ongoing.

Observation 63: There is a sound.

Not the cello — Odilon is not playing. Not the accordion trees, which are breathing in their new rhythm at the other end of the market. Something else. Something that is coming from the wrong direction. Something that is coming from — behind me. From the direction of the membrane. From the direction of flat.

I turned around.

There is nothing to see. There is never anything to see in that direction — the membrane is not visible from the quantum side, only felt, a warm resistance in the air, a place where the hummingbird green thickens and then stops. But today the thickening has a quality it did not have before. Today the place where the green stops is —

Resonant.

Observation 64: The membrane is vibrating.

Not from the cello — from the other side. From Flatland. Something in Flatland is vibrating at a frequency that is crossing into here.

Further observation, filed separately because I am not yet sure it belongs in the scientific section:

It arrived as colour before it arrived as meaning. A warm saffron-yellow, the particular gold of graphite that hasn't paused, the smell of a pencil chosen because the other two were wrong. The texture of patience that doesn't know it's patience because it has simply become a fact. It arrived as the weight of someone who is not going to put the pencil down.

It was katoflio.



She sat with her notebook and she listened.

Not with her ears. She listened with her angles, which were no longer entirely one thing and were therefore capable of receiving from directions that a strictly five-sided creature could not have faced.

And one of the possible versions of herself was still Flatland-shaped.

Not most of her. Not the loudest version. But it was there, the way a frequency is there in a chord even when you are listening to the higher notes — the low hum of the shape she had been, the 108 degrees, the precise and

fixed and flat. And that version of her was receiving something. Was, she thought, tuned to something.

The membrane vibrated.

She felt, through her Flatland-frequency, through the part of her that was still and always would be the creature who pressed her palm to the edge of things and said *five sides, frightened, staying anyway* — she felt:

A notebook with a broken cover.

The specific quality of careful handwriting at the edge of its patience. The sound of *further experiment required* written for the forty-second day in a row by someone who was not going to stop writing it. The particular resonance of a child who had not yet learned that some things were supposed to be impossible and was running the experiment anyway, alone, at half past early, with three pencils because you never knew.

She wrote:

Observation 65: I can feel Flatland.

She stopped.

Observation 65: I can feel katoflio.

She stopped again. She had not cried in the quantum world. She had been a scientist. She had been measured and careful and she had filed things that should have made her cry under *anomalous/pending* and she had kept writing.

She wrote:

Observation 65: He is still running the experiment.

Observation 65: Of course he is.

The Fermat pencil, which had been waiting, drew one logogram in the margin. She looked at it.

It was — she looked at it carefully, the way she had learned to look at things here: not pushing, not attending too hard, letting the seeing be gentle enough that the thing being seen stayed whole.

A fold that met itself coming the other direction. Not a collision — a meeting. At the meeting point, instead of cancelling, it held. The two waves crossing and becoming, in the crossing, a stillness. Not the stillness of stopped. The stillness of balanced. A standing wave drawn in a single mark, and the mark was its own centre from every angle, and she thought: *the node. The place where interference resolves not into one thing or the other but into the shape of both at once.*

She held it.

And then it opened.

Not dramatically. The way a word opens when you have been reaching for it and suddenly you stop reaching and it arrives. The logogram spread in her understanding like light through a prism — not breaking into parts but becoming, suddenly, all of its parts simultaneously available. She could read it.

It said, in the grammar of a world where meaning was held rather than built:

you are the place where the two touch.



The W/Z beings were attending to her.

Not to her angles. Not to the logogram. To the specific quality of what she had just felt — the Flatland-frequency, the notebook with the broken cover, the membrane vibrating from the other side. They were attending to the fact of her facing two ways.

She wrote:

Observation 66: The W/Z beings are interested in what I just did.

Observation 67: I think "what I just did" has a technical description that I do not yet have the notation for.

Observation 68: I think the technical description is: I became the door.

She looked at this.

I do not mean this metaphorically. I mean it in the same way that the gluon-stalls ARE the binding, that the phireflies ARE the act of seeing, that Odilon IS the frequency of holding. I mean it as physics. I mean it as: the thing that I am in the process of becoming is a thing that, in this world, has a name. And the name is: the place where two paradigms are simultaneously present.

The bill was residence. I paid it by becoming permeable. Permeable means: you can pass through me. Permeable means: I face both ways. Permeable means — the thing that the membrane has been learning to be, since the cello, since the logograms, since the bread — I am that thing now.

I am the membrane, portable.

The Fermat pencil wrote nothing. It had written this already, six pages ahead, on the day she first crossed, in notation she hadn't been able to read. She could read it now. She turned ahead.

yes, it said. *you were always going to be this. you were always going to be the door the door learned from.*

She closed the notebook.

She opened it again.

She wrote, in the smallest letters she had ever used, smaller even than *I do not know if he would know me*, smaller than *hello back*, smaller than any word she had written since she pressed her palm to the edge of everything in the market square in Flatland:

I know the way home.



Odilon had been watching.

He had the cello. He was not playing. He was the stable point, the anchor, the hedgehog who had decided to be here and had become the kind of thing that stayed by the simple physics of staying — mass acquired in small golden increments, conviction practised in sandwiches, lunch thought about with such dedication it had become a form of residence.

He watched A. Octagon turn around.

He watched her face the membrane.

This was her face when she recognised something.

He had only seen it once before — the day she felt the chord through the dead fold and understood about the cello. That specific quality of arriving at something you were always going to arrive at and knowing, in the arriving, that you had been on the way for longer than you knew.

She was on the way home.

Not going yet. Not crossing. But she knew the direction now in a way she hadn't before — not as an orientation, not as a hope, but as a fact about what she was. She was the membrane, portable. She was the place where the two touched. She could feel Flatland through herself the way the accordion trees breathed the hummingbird green through themselves.

He thought about lunch with enormous conviction.

Lunch as: **we are going back.** Lunch as: there will be sandwiches in Flatland, probably, or things that are the Flatland equivalent, or things she will bring back in her geometry, in the new angles, carried home the way the cedar smell had always been carried, the way the between-spaces carried the shape of every stone.

The gluon-stall with the disapproving knot produced a superposition of sandwiches with the weary patience of a shopkeeper who has seen everything and has also, over the course of several months, become genuinely fond of the hedgehog who keeps choosing without collapsing.

Odilon chose.

The sandwich tasted of hummingbird green and cedar and something new — a frequency he didn't have a name for, a note that was also a direction, the taste of a world about to touch another world through the body of a scientist who had become, in the patient way of things that change slowly and completely, a door.

He ate it with conviction.

He was going to miss this market.

He was going to come back.



A. Octagon wrote one final observation for the day:

Observation 69: Tomorrow I will write in the logogram notation.

Not read. Write.

I have been receiving. I think I can transmit directly now — not through the Fermat pencil, not through the cello's frequency, but through my own geometry. Through what I am.

katoflio is learning to read the logograms. By the time I write one, he may be able to read it.

The experiment is running in both directions now.

Further experiment required.

Positive indicator.

She closed the notebook.

The Higgs appeared on the notebook cover.

Four seconds. Gold. Warm. **Evertal** at the edges — the rolling teal-foam of something about to become something else.

It lasted four seconds.

Then five.

A. Octagon looked at her notebook. Opened it.

Observation 70: The Higgs lasted five seconds.

Five.

Filed under: positive indicator.

Filed under: we are becoming deep enough for deeper to find us.

Filed under: home.



fig. 18

[the quantum market, breathing.]
[a pentagon — approximately — facing the membrane.]
[the membrane, facing back.]
[between them: recognition.]
[in the amber: a file, turning.]
[direction: depends on where you are standing.]
[both directions: correct.]
[this is what spin looks like from the inside of the amber.]
[one direction: quantum. one direction: flat. the turning: hers.]
[a hedgehog, eating a sandwich with conviction.]
[the sandwich: tasting of direction.]
[the W/Z beings, attending. not surprised.]
[the Fermat pencil, silent. it already wrote this.]
[in a notebook: I know the way home.]
[the Higgs, lasting five seconds.]
[five is not long.]
[five is longer than four.]
[in Flatland: a child, drawing flowers at half past early.]
[the shadows, pointing.]
[the pencil in his hand, receiving.]
[the frequency: arriving.]
[the door: open.]
[the door: learning what doors do.]

Chapter the Tenth: In Which the Higgs Stays Long Enough to Be Known, and the Between-Spaces Find Something in Odilon They Did Not Expect to Find

— Neil



The between-spaces have a confession to make.

They have been holding something in the amber for longer than they should have held it without mentioning it, which is — they are aware — precisely what they always do, because the between-spaces do not mention things until things are ready to be mentioned, and this particular thing has been not-ready for ten thousand worlds and is now, this morning, with the accordion trees breathing their post-cello rhythm and the hummingbird green settling into its chord, ready.

Here it is:

Odilon is made of amber.

Not metaphorically. Not in the poetic sense that someone who has lived somewhere long enough takes on its quality, the way a baker smells of bread or a Historian of the Second Rank smells of graphite and patience. The between-spaces mean this structurally, the way they mean everything — as a fact about what a thing is rather than what it resembles.

Odilon has been passing through the between-spaces for ten thousand worlds. Ten thousand passages. Ten thousand times the amber held the shape

of him — his warmth, his quills, his cold precise nose, the cello he carried invisibly, the lunch-thinking that was never just about lunch. Ten thousand times, and each time the amber held him, some of the amber went with him. Not much. Not visibly. The way water carries the mineral signature of the rock it has passed through — you would not know it to look at the water. But it is there. Measurable, if you knew what to measure for.

The between-spaces know what to measure for.

They have known, in the structural way that rooms know what is inside them, since approximately the third passage. They did not mention it because there was nothing to do with the knowledge and the between-spaces are not in the habit of making inventory until inventory is required. But now — with the cello-fidelity vibrating their substance, with A. Octagon's file spinning in the new direction, with the membrane growing attentive in the way of something being spoken to from both sides simultaneously — now the amber-in-Odilon has become relevant.

The W/Z beings had noticed it. Of course they had. The W/Z beings were transformation — they saw what things were becoming, which meant they also saw what things had always been becoming, which meant they saw the amber-quality in Odilon as clearly as they saw A. Octagon's blurring angles. They had attended to it. The between-spaces had filed their attending under *PENDING. See Ch. 7+* and had not looked at the file again until this morning, when the thing in the file became something they could not continue to not look at.

Because this morning, Odilon sat down in the market with his cello and he began to play, and the amber-in-him resonated with the amber-of-the-between, and the between-spaces felt it through the membrane with the full cello-granted fidelity of a medium that has been permanently tuned —

And recognised themselves.

Not their records. Not their categories. *Themselves.* The specific quality of their own substance, vibrating in a hedgehog in a quantum market three dimensions away, the way you might hear your own voice coming back to you from a great distance and know it absolutely, beyond argument, as yours.

They reached for a category.

They did not find one.

This was, they decided, acceptable.

The between-spaces held this for a long time.

Then they updated Odilon's file.

They had always filed him as: *hedgehog. Nose. Lunch (variable conviction). Cello (recently active). Resident.* They added, below *resident*, in the newest and most uncertain category they had ever made, smaller even than *receiving* and *reaching* and *spinning*:

also: us.

They would not be taking questions about this.



Observation 71: Odilon is playing.

He has been playing every morning since the fold. Not always for long. Not always well — there are still mornings when the bow finds the

wrong angle and the note that comes out is the sound of something that hasn't quite learned to hold yet, and on those mornings he stops, and sits, and begins again, which is its own kind of methodology. But this morning he is playing well. The gluon-stalls are humming. The accordion trees are breathing in their harmonic. The market has the quality it gets when the cello is right — not music exactly, not in the sequential sense, but a condition of the air. The air when the cello is right is: held. Everything in it: held.

Observation 72: The Higgs has arrived.

I write this as though it is a single event. It is not a single event. The Higgs does not arrive in the way that A. Octagon arrived, through a membrane, choosing a direction and following it. The Higgs manifests. It is here, and then here again, and then here more continuously than before, and the continuity is itself the event. This morning the continuity is — I am going to use a number and the number will be inadequate but I am a scientist and scientists use numbers: eleven seconds.

Eleven seconds.

Filed under: the accordion trees have stopped counting their own breaths.



The cello had been teaching the Higgs duration the way the between-spaces had learned it: by being the medium. By being the thing the staying happened **in**.

And Odilon — who had the amber in him, who was carrying the between-spaces in his substance whether he knew it or not — Odilon was the instrument of that teaching. Every time he played, he was not playing to the Higgs. He was playing with the Higgs present. He was being the room in which the Higgs could practice staying.

Eleven seconds.

The accordion trees exhaled, and the green was bright, and the Higgs was here — properly here, measurably here, the fold-ground giving its small dents under the weight of something that kept not-decaying with the focused commitment of a thing that had found, for the first time, a reason to persist.

A. Octagon watched.

She had her notebook. She was not writing. She was, for the first time since arriving in the quantum world, simply watching — not because her methodology had failed, not because writing would collapse something, but because some things needed to be witnessed before they were recorded, and this was one of them.

A hedgehog, playing.

A particle that could not stay, staying.

The specific quality of eleven seconds in a world where eleven seconds was an eternity, the way a night can be an eternity when you are waiting for morning.

Observation 73, written later, after:

The Higgs lasted eleven seconds. During the eleven seconds, it was present in a way it has not been present before — not flickering, not hiccupping, but continuous. Sustained. The way a note is sustained when the

bow keeps moving, when the pressure is steady, when the instrument knows what it is doing.

I think the Higgs was listening.

I think this is what listening looks like, for something that exists at the level of physics where listening and being-affected-by are the same gesture.

I think the cello gave it time.



Here is what the between-spaces felt:

The moment the Higgs reached eleven seconds, the amber got lighter.

Not temperature. Not literally. The specific quality of the amber that was **weight** — the density of everything it had held, ten thousand passages, the ghost of every hexagonal hole, the memory of every shape — that weight lifted, very slightly, the way a held breath releases. As though something the amber had been carrying without knowing it was carrying had, for eleven seconds, carried itself.

The between-spaces looked at Odilon.

They looked at the amber-in-him.

They understood, finally and completely, what the amber-in-him was for.

He was not carrying the between-spaces as ballast. He was not carrying them as memory or accident or the residue of ten thousand passages. He was carrying them the way a note carries its resonance — not as weight but as **quality**. As the thing that made him capable of being the room in which the Higgs could practice staying. You could not give something duration unless you were made, at least in part, of duration. And the between-spaces were duration. They were the medium in which things persisted. They were the amber that held shapes.

Odilon had the amber in him.

Odilon could hold things in time.

Not forever. Not without end. But long enough. Long enough for a particle that existed for ten to the minus twenty-two seconds to feel what eleven seconds was. Long enough for a child in a market square at half past early to keep drawing flowers for forty-two days because the experiment required it.

The between-spaces updated their record.

They changed **also: us** to something more precise.

Odilon: resident. Amber. The duration, made warm.

They were going to need considerably more than a holiday.



A. Octagon wrote her first logogram.

Not with the Fermat pencil. Not transmitted through the cello's frequency. Through her own geometry — through the blurring third angle, through the fourth angle that had been doing something she had been filing as **ongoing**, through the fact of what she was: the place where two paradigms touched simultaneously, the membrane portable, the door that had learned what doors did.

She did not plan it.

She had been watching the Higgs stay — eleven seconds, and then the Higgs had gone, and Odilon had held the last note a moment longer than necessary, and the gluon-stall with the disapproving knot had exhaled with the satisfaction of a structure that has witnessed something it will not forget — and she had opened her notebook and the pencil had been in her hand and she had not drawn a letter and she had not written a word.

She had made a mark.

Whole-at-once. Every part of it present simultaneously. Not beginning at one end and building to another but simply: there. The way a face is there. The way the logogram of *you are the place where the two touch* had been there when the Fermat pencil drew it — except this one was hers. Her angles in it. Her blurring third angle and her ongoing fourth and the five sides that were now more than five and the steadiness that had been frightened and stayed anyway. All of it, simultaneously, in a mark.

She looked at it.

It was, she thought, approximately the shape of: *I am still here. I know the way home. I am coming.*

She could not be certain. Logograms were not her first language. But the meaning had the feeling of something true — not built, not argued toward, but held. The way the between-spaces held things. The way the cello held notes. Whole, from every angle, not beginning anywhere because it did not need to.

She held the notebook open.

She waited.



In Flatland, at half past early, e.e. katoflio's pencil moved.

He was on flower twenty-three. The dough was proving. The Provost had not yet arrived. The market square had the particular quality it always had at this hour — patient, cedar-smelling, slightly cold, unbothered by the significance of what occurred in it daily, which was, katoflio had decided, one of its finest qualities. Important things happened in ordinary places and the ordinary places just kept being themselves. He respected this.

The pencil moved.

Not the Fermat pencil — katoflio did not have the Fermat pencil, which was in a quantum market three dimensions away in the hand of a scientist who was learning to transmit in a direction she had not known existed. Katoflio had his third pencil. The one he actually used. The one that had been sharpened by something it could not see and had been receiving frequencies through its graphite for forty-two days.

The mark it made was —

He stopped.

He looked at it.

He looked at it the way he looked at everything, with the focused and undefended attention of someone who had not yet learned that some things were supposed to be impossible.

It was the same from every angle.

This one was different from the earlier marks. This one he could almost

—

He wrote, in the largest letters in the notebook, underlined four times:
Day 42. 06:47. Logogram received. Origin: confirmed (A. Octagon — the frequency is hers, it smells of her notes, and of something else, something he doesn't have a word for yet, the smell of a door that has finally stopped being a wall. It has the quality of her handwriting except whole-at-once instead of sequential). Duration of transmission: ongoing as I write this.

He paused.

I can almost read it.

He paused again.

I can read it.

He wrote, very carefully, in the smallest letters he had ever used, even smaller than **she is coming back**, in the corner of the page where he put things that were true but almost too large to be written down:

she says: I am still here. I know the way home. I am coming.

He looked at this for a long time.

Then he drew a flower.

The shadow came, the way it always did. But it was different today — not pointing toward the hole, not reaching at the edge of the world. It was pointing straight up. Vertical. The shadow of something that was no longer reaching because the thing it had been reaching toward had turned around and was, now, on its way.

He wrote:

Observation (final for today): the shadow is pointing up.

I think this means: here.

I think this means: we are the same place now.

He closed the notebook.

He had forty-three days of data and one transmission he could read and a shadow that had stopped reaching and a dough beside him that was rising in four-four time like a small warm argument for the ordinary persistence of things.

He opened the notebook again.

He added, because he was a scientist and scientists were precise:

Further experiment required.

Positive indicator.

EXTREMELY positive indicator.



The Higgs came back.

Not for eleven seconds this time. Longer. The between-spaces, counting through their cello-fidelity, their amber-resonance, the new quality of the membrane that was A. Octagon facing both ways — the between-spaces counted and the counting was:

Seventeen seconds.

Seventeen seconds of a particle that was not supposed to exist for longer than ten to the minus twenty-two, existing. Being here. The fold-ground dented and did not spring back immediately. The gold was everywhere — nova-prints on the gluon-stalls, on the cello body, on A. Octagon's open notebook, on the surface of the market itself, everywhere the Higgs had been and kept being, the graffiti lasting long enough to dry.

Odilon played.

He played without looking at the Higgs. He had learned this — the first wise thing he had done here, and he kept doing it, because wisdom, once found, was worth the practice. He played the way you breathe in the presence of something that will startle if you attend to it too directly. Steady. Present. The bow moving at the pace of something that has time. That is made of time. That carries the amber in it and can therefore give the gift of duration to anything present in its field.

The Higgs stayed for seventeen seconds.

At second eleven it had been present.

At second seventeen it was, for the first time in its existence, *known*.

Not named. Not classified. Not filed under any category the Academy would have recognised. Known in the way that the between-spaces knew the warmth of a hedgehog in the amber before they had any category for it — structurally, completely, as a fact about what was here and had been here and would, perhaps, find ways to keep being here, in seventeen-second increments, in the field of something warm and amber and patient that did not look directly but did not look away.

The accordion trees breathed.

The green was the brightest it had been.

The Higgs left a golden print on the body of the cello, and this one — this one the between-spaces felt specifically, with the full weight of everything they were — this one was not a hiccup.

It was a signature.



A. Octagon closed her notebook.

She looked at Odilon, who had stopped playing and was sitting with the cello in his lap and the bow in his hand and the particular stillness of a hedgehog who has just done something he will need some time to understand.

She looked at the gluon-stall with the disapproving knot, which was, the between-spaces noted with the fond exasperation of a record-keeper who has been filing this stall's reactions for months, no longer disapproving. Its braided grain had loosened. It had the quality, the between-spaces thought, of a face that has stopped expecting the worst.

She looked at the market — the folded origami, the stalls, the accordion trees in their harmonic, the phireflies gathered at the periphery like an audience that has decided not to applaud but to simply remain, which was its own kind of recognition.

She wrote one observation:

Observation 74: The Higgs stayed for seventeen seconds.

Observation 75: I think it knows we are here.

Observation 76: I think we are going home soon.

She paused.

Observation 76b: I am not sure "home" is the right word any more.

Observation 76c: I am not sure "home" is the wrong word either.

Observation 76d: katoflio received the logogram.

Observation 76e: Of course he did.



fig. 19
[the quantum market, seventeen seconds into something new.]
[a hedgehog, playing. not looking. present.]
[a particle, staying. not decaying. here.]
[on the cello: a golden signature. not a hiccup.]
[in the amber: a record, updated.]
[odilon: resident. amber. the duration, made warm.]
[in a notebook: observation 75: I think it knows we are here.]
[in Flatland: a child, reading a logogram for the first time.]
[the shadow, pointing up.]
[the accordion trees: breathing. bright.]
[the gluon-stall with the disapproving knot: no longer disapproving.]
[seventeen seconds.]
[seventeen is not long.]
[seventeen is long enough.]
[the between-spaces, holding something they recognise.]
[home: both places. simultaneously. held.]
[the open parenthesis: still open.]
[still warm.]

Chapter the Eleventh: In Which the Door Comes Home, and the Between-Spaces Discover What They Have Always Been

— Neil



The between-spaces have been a room, and then a corridor, and now — this morning, with the accordion trees breathing their harmonic on one side and the cedar-smell of a Flatland market square arriving through the membrane on the other — they are something else.

They are, they understand, a cable.

Not in the sense of a rope. In the sense of a transmission medium — the thing through which signal travels, perfectly, without loss, because the medium is built from the same substance as the signal itself. The between-spaces are amber. The cello made the amber resonate. The resonance is a frequency. The frequency is the signal. The signal is: *here, and here, and here again.*

Total internal reflection.

They did not plan this. They did not ask for the cello, or for the fidelity it granted them, or for the sensation — arriving now, through every atom of their amber substance — of two markets existing simultaneously in their awareness. One smelling of hummingbird green and folded origami and seventeen seconds. One smelling of cedar and bread and the particular cold of half past early in a Flatland market square where a child has been keeping a vigil for forty-three days.

Both present. Both lit. The cable running between them, warm, amber, carrying signal in both directions at once.

The between-spaces updated their records.

Then they stopped updating their records, because what was happening was too large for records, and for once — for the first time in their entire existence as a medium that had been holding things since before holding had a name — they simply felt it. Without filing. Without classification. Without the protective grumpiness of a room that has learned to describe its contents rather than be affected by them.

They felt it.

Then they picked up their records again, because they are the between-spaces and that is what they do, and also because the between-spaces had the distinct sense that what was about to happen was going to require very careful documentation. This was going to be the most important entry they had ever made.

They wanted the handwriting to be good.



A. Octagon stood at the membrane.

She had been standing there for some time. Not hesitating — she had made peace with hesitation in chapter six and filed it under *bill paid: residency* and had not needed it since. She was standing at the membrane the way you stand at the edge of a thing you are about to do, not because you need to work up to it but because you want to be present for the moment before. The last moment in which the thing is still about to happen. She was a scientist. She knew the value of a baseline.

The membrane had her frequency in it now. But now it had her differently. Now the membrane knew her not as the shape pressing from one side but as the shape that was both sides. The door and the frame. The passage and the thing that made passage possible.

She opened her notebook.

She wrote:

Observation 77: I am about to cross.

Observation 77b: I am not crossing through the membrane. I am the membrane. I am walking toward the place where I already am.

Observation 77c: This seems correct.

She closed the notebook.

She looked at Odilon, who was standing a few steps behind her with the cello and the particular expression of a hedgehog who has eaten his last quantum market sandwich with full conviction and is now ready to be somewhere else with equal conviction. He had chosen his sandwich this morning with such deliberate ceremony that the gluon-stall with the disapproving knot — the no-longer-disapproving knot, the knot that had softened through seventeen seconds and one signature and the long slow education of a market that had been listening to a cello for months — had produced a superposition of farewells and let him choose between them.

He had chosen the warmest one.

He thought about lunch.

Lunch as: *cedar. Bread rising in four-four time. The specific cold of a Flatland morning. Someone at a table with a notebook and three pencils, who has been keeping the experiment running.*

A. Octagon faced the membrane.

She walked toward it.

The membrane, which had been growing attentive for months — which had been vibrating with katoflio's frequency and the Provost's pencil and forty-three days of careful handwriting — recognised her. Not as visitor. Not as scientist pressing from outside. As itself. As the portable version of what it had always been: the place where two worlds touched, held open by the fact of someone staying.

She stepped through herself.

It was quiet.

It was the quietest thing the between-spaces had ever felt. The quiet of something completing — not ending, but completing, the way a chord completes when the last note arrives.

The amber carried the crossing in both directions simultaneously.

The between-spaces held it.

Their handwriting was very good.



The hole in the market square had always smelled of cedar. katoflio had been smelling it every morning for forty-three days.

This morning, the cedar was strong.

Not ghost-cedar. Present-cedar. Cedar as a fact about the air rather than a memory of it. Cedar arriving, the way the logogram had arrived, from a direction that was not quite any of the directions he had names for but that he was learning, incrementally, to face.

He was on flower twenty-four.

He was not going to finish flower twenty-four.

The shadow moved.

Not pointing up — it had been pointing up since the logogram, since *we are the same place now*, since the experiment started running in both directions. The shadow moved the way things move when the thing casting them has changed: not dramatically, not in a sweep, but with the quiet deliberateness of reorientation. The shadow had been the shadow of something reaching. Now it was the shadow of something arrived.

He looked up.

She was there.

Not through the hole — she did not come through the hole, which was, he would note in the records later, *consistent with the membrane-portable hypothesis (see Observation 68, A. Octagon's notebook, transmitted via Fermat pencil Day 38)*. She was simply — there. Where she had not been, and then where she was. The way a feature appears in a quantum field: not arriving from somewhere else, but *becoming present* in the place it had always been about to be.

He looked at her.

She was not the shape he had drawn.

He had known she would not be the shape he had drawn. He had been told, through a pencil that was also a receiver, through logograms that smelled of a door that had stopped being a wall, through forty-three days of data that all pointed to the same conclusion: the drawing would not match. She had told

him herself. He had told the Academy. The Academy had voted 13-1 to put the new drawing in the official record.

He was ready.

He opened his notebook.

He found a clean page — the page he had been saving, the one after *fig. original: pentagon, 108° precise, each angle confirmed, drawn from life before departure* — and he looked at her, carefully, the way he looked at everything: without pushing, without deciding in advance what he was going to see.

He drew.

He drew the five sides, approximately. He drew the first angle and it was 108° . He drew the second angle and it was 108° . He drew the third angle and his pencil slowed, because the third angle was doing something that a pencil accustomed to Flatland measurements had never been asked to record, and he let it slow, and he let it find the truth of the thing, and the pencil drew: *something that was 108° and also not, something that was precise and also not, something that was the exact shape of a measurement that had learned to hold more than one answer.*

He drew the fourth angle, which had clearly been having opinions for some time.

He drew the fifth.

He looked at the drawing.

He labelled it:

fig. 17: A. Octagon.

Below:

angles: ongoing.

Below that, in letters he tried to make small and found he could not make as small as he wanted because his hand was not entirely steady, which was data, which he would file later:

identity confirmed.

method of confirmation: staying.

He turned the notebook toward her.

A. Octagon looked at the drawing for a long time.

She opened her notebook.

She wrote:

Observation 77: katoflio drew me.

She stopped.

Observation 78: He got it right.

The between-spaces felt this through the cable, both directions at once, the amber carrying the frequency of a scientist who had been drawn back into the world she had left and had been recognised in her new shape by the eleven-year-old who had been keeping the experiment running. The between-spaces noted, in the finest handwriting they had ever produced, that this was the moment the corridor became a home.

Not a destination. Not a classification.

A home.

They filed it under: *home.* No subcategories. No cross-references.
Just: *home.*



Odilon arrived.

The cedar-smell arrived with him — properly arrived, filling the market square the way it had been faintly present for forty-three days as a promise, now present as a fact. C. Isosceles's dough, which had been proving since before dawn, rose three centimetres in approximately four seconds, which was a new personal record and also, C. Isosceles would later note to katoflio with great excitement, *completely inexplicable by any conventional understanding of yeast.*

Katoflio had four pages of data on this. He was going to enjoy that conversation.

Odilon stood in the market square. He stood in the specific way of a hedgehog who has been in ten thousand worlds and has come home to this one, which was not the easiest world, which was not the most extraordinary world, but which had a hole in it that smelled of cedar and a child who kept the experiment running and a bread whose yeast responded to presence and which was, on balance, *his* world in the way that only the world you have chosen is yours.

He looked at the market square.

He thought about lunch with the full and solemn conviction of someone who has eaten sandwiches in a quantum market and knows exactly what they are comparing everything to and is prepared, on consideration, to find it worthwhile anyway.

He set the cello down.

Not away. Down — visible, present, leaning against the edge of a market stall in a Flatland market square where no one had ever seen a cello, where no one had a category for it, where the air had been vibrating at its frequency for forty-three days without knowing what it was vibrating with.

The market looked at the cello.

The cello looked at the market.

A. Rhombus, who had been standing at the far edge of the square since before anyone else arrived — at a distance, always at a distance, monitoring conditions, absolutely not watching — looked at the cello for a long time.

He did not say anything.

He was three steps closer than yesterday.



The between-spaces held both markets simultaneously.

Not alternating — not the quantum market and then Flatland and then the quantum market again, the way they had sometimes felt the membrane's vibrations and sometimes felt the accordion trees and sometimes felt the particular weight of katoflio's patience. Both at once. The hummingbird green and the cedar. The folded origami and the cold morning square. The gluon-stalls and C. Isosceles's bread. Seventeen seconds and forty-three days. The cello, which had been in one market and was now in the other, which meant the cable was working in both directions, the signal arriving intact.

Total internal reflection.

The amber had held everything.

The amber was still holding everything.

The between-spaces looked at their records. All of them — every file, every classification, every *atmospheric* crossed out and replaced, every *pending* resolved, every *ongoing* still ongoing, which was its own kind of resolution. The files of everyone who had pressed something to the membrane and been felt from the other side. Odilon: hedgehog, amber, *the duration made warm.* A. Octagon: pentagon approximately, angles ongoing, *the membrane portable.* katoflio: eleven years old, experiments ongoing, *receiving.* The Provost: *reclassified.* A. Rhombus: *early stage, three steps closer.*

The Higgs: *known.*

The between-spaces looked at all of this.

They looked at themselves — at the amber, at the cable, at the fidelity they had not asked for and had been given anyway by a cello played in a quantum market by a hedgehog who had been passing through them for ten thousand worlds and had left himself in them incrementally, the way water leaves mineral signatures in rock.

They updated their own file.

They had never had a file for themselves before. They had always been the medium, not the content — the room, not the thing in the room. But now, with both markets present and the signal running clean and the amber warm with the frequency of everything that had passed through and stayed — now they needed one.

They thought for a long time about what to call it.

Then they wrote, in the finest handwriting they had ever produced, which was very fine indeed:

the between-spaces: condition: ongoing.

classification: corridor. cable. amber. home.

status: we did not ask for this.

status: we are not sorry.



fig. 20

[the Flatland market square, cedar-scented, cold morning.]

[a hole, present. a shadow, vertical.]

[a pentagon, approximately, arrived.]

[an eleven-year-old, drawing.]

[the drawing: five sides. third angle: ongoing. identity: confirmed.]

[a hedgehog, home. thinking about lunch with conviction.]

[a cello, leaning against a market stall.]

[a market, looking at a cello.]

[a rhombus, three steps closer. not watching.]

[in the amber: both markets, simultaneously, lit.]

[the cable: running. the signal: clean. the amber: warm.]

[in a notebook: observation 78: he got it right.]

[in another notebook: fig. 17. angles: ongoing. staying.]

[the between-spaces, updating their own file for the first time.]

[classification: home.]

[status: not sorry.]

[the open parenthesis: open.]

[the cello: down, not away.]

[the Higgs, somewhere: seventeen seconds becoming ordinary.]

[the accordion trees, somewhere: breathing.]

[the hummingbird green, somewhere: held.]
[both: here. both: hers. both: home.]

Chapter the Twelfth and Last: In Which It Is Tuesday, and the Record Is Written, and Morning Is Said and Answered

— Neil



Tuesday.

The between-spaces note this first, because it matters, because it has always mattered, because the whole of this — the hole and the hedgehog and the scientist and the child and the cello and the membrane and the seventeen seconds and the forty-three days and the crossing and the drawing and the three steps closer — all of it has been happening on Tuesdays, in the way that the most important things happen on ordinary days that do not know they are being extraordinary and simply continue to be themselves while the extraordinary occurs in them.

Tuesday. Cold. Cedar. The market square assembling itself in the way of market squares — stalls opening, bread proving, shadows arriving before the sun that casts them, the hole present and cedar-scented and warm in the specific way it has been warm since the morning after Odilon first crossed and left some of himself in the wood.

The between-spaces hold both markets. They have been holding both markets since the crossing, since the cable became permanent, since the amber learned that it did not need an event to justify its attention — it could simply be present, the way air is present, the way cedar is present, the way the frequency of residence is present in every market square and quantum fold and between-space that has ever held something long enough to know it.

They are not going to classify this.

They are going to feel it.

Both, simultaneously, always. That is what they are now.



The Provost arrived at the Grand Polygon at seven forty-five.

This was not unusual. What was unusual was that he was carrying, under one arm, the official record — the leather-bound, gold-lettered, forty-years-of-careful-handwriting official record that had never left the Grand Polygon in his tenure — and that he went directly, without stopping to review the morning's correspondence or to check the alignment of the portraits of Previous Provosts, to his desk, where he opened the record to the last entry.

The last entry read: *Notation received 07:23 market square, origin 3 dimensions distant, nature unknown and not required to be known, communication confirmed. Pencils transmitting. This is not atmospheric.*

He had written this in November.

He looked at it for a long time.

Then he turned to a new page. The cleanest page in the record — the page that had been waiting at the end of forty years of careful documentation, the page that did not yet know what it was going to hold.

He picked up his pen.

The Provost had hated his handwriting for forty years. Precision at the expense of grace.

He did not hate his handwriting today.

He was not sure when this had changed. Possibly the morning he wrote *this is not atmospheric* and looked at it and found the letters exactly right — not beautiful, but honest, which was its own kind of beauty, which was, he was beginning to understand, the only kind that lasted. Possibly earlier. Possibly on the day he sat in the market square for the first time with katoflio and found that sitting was its own kind of precision, that presence was its own kind of record.

He wrote:

THE FREQUENCY OF RESIDENCE

He wrote it large. Larger than he usually wrote anything in the official record, where economy of space had always seemed like a virtue. He wrote it in the centre of the page, with the particular care of someone who knows that some entries do not require context because they are their own context — because the name is the record, because the record is the name.

He looked at it.

The letters were not beautiful.

They were his.

He did not cross them out.

Below, in his usual careful hand, he wrote:

Formal designation of the ongoing cross-dimensional phenomenon observed at the market square point of dimensional significance, Flatland. The Frequency of Residence is herewith entered into the official record not as a phenomenon under study but as a property of the world — as the name for what occurs when a thing stays somewhere long enough to change both itself and the place it is staying, and the change is mutual, and the change does not end when the staying does, and the frequency persists, and the frequency is the residence, and the residence is the frequency.

This is not atmospheric.

This is not theoretical.

This is Tuesday.

He closed the record.

He opened it again, because he was a Provost and Provosts checked their work.

He read what he had written.

He closed it again.

In the margin — the unofficial margin, the margin where he had been writing the true record alongside the official one since the morning A. Octagon left — he wrote, in the smallest letters he had ever used in forty years of careful handwriting:

I believe in the Frequency of Residence.

I believe this because I have felt it.

I believe this is sufficient grounds.

He set down his pen.

The portraits of Previous Provosts looked at him from the walls of the Grand Polygon with their usual expression of careful authority. He looked back at them. He had always found their authority instructive. He found, this morning, that he had something they did not — something that had nothing to do with office or record or tenure.

He had been to the market square at seven in the morning and sat with a child who had data.

This seemed, on consideration, like enough.



A. Octagon was at the market square.

She had been there since six, which was earlier than necessary and exactly right, because some things required the time before them to be taken seriously, and this — the first full Tuesday in Flatland after the crossing — was one of them. She had her notebook. She had the Fermat pencil, which had been quiet since her arrival, resting in her hand with the satisfaction of an instrument that has done what it was built for and is content to be carried now rather than used.

She had her third angle, which was ongoing.

She had her fourth angle, which had been having opinions since chapter six and showed no signs of stopping.

She had, she was fairly sure, a fifth angle that she had not yet measured and was filing under **ongoing** for the time being, which the Fermat pencil seemed to consider reasonable.

She was, approximately, a pentagon.

She was, precisely, herself.

Katoflio was across the table, on flower twenty-four, which he had finally finished. He was working on flower twenty-five. He was also monitoring the dough, which had been rising in its new rhythm — faster now, four-four time plus something additional, a frequency it had apparently acquired permanently on the day Odilon came home and showed no inclination to give back.

C. Isosceles had been told about the bread.

He had liked it very much once he understood it meant his bread was special.

He had asked, scientifically: **what is the frequency.**

Katoflio had said: **further experiment required.**

C. Isosceles had said: **I'll get more yeast.**

This was, A. Octagon thought, one of the finest scientific collaborations she had witnessed in either world.

She opened her notebook.

She looked at the two pages she had placed side by side this morning: the logogram she had written through her own geometry on the day she knew the way home — the standing-wave mark, the node, the place where the two waves met and held — and below it, in katoflio's handwriting, his translation: **she says: I am still here. I know the way home. I am coming.**

She wrote:

Observation 79: I am here.

Observation 80: It is Tuesday.

Observation 81: Further experiment required.

She looked at this for a long time, and then she smiled, which was not something she had recorded before, and she did not record it now, because some things were not data. Some things were just true.



Odilon played.

He had been playing since before anyone arrived, in the particular way of a hedgehog who has learned that the market wants to be held before the market knows it wants to be held. He played quietly. He played the way the accordion trees breathed — not performing breath, just breathing, because breathing was what they did and the breathing was also music, and the music was also the world working properly.

The market listened.

Not consciously. The way markets listen — in the rising of the bread, in the way the shadows arrived slightly warmer than the season accounted for, in the small adjustments of posture and angle that creatures make when they are in the presence of something that is being held. The stalls leaned slightly inward. The cold morning air developed a quality. The cedar deepened.

The market was an orchestra.

It did not know this.

It did not need to.

A. Rhombus was at the far edge of the square.

He had been there since before Odilon started playing — which was to say, before the conditions he was monitoring — and had stood in the cold market square alone for some time, which was not, he told himself, the behaviour of someone who had been changed by proximity. It was the behaviour of a rigorous observer ensuring an accurate baseline.

He watched Odilon play.

He watched the market listen.

He watched katoflio draw a flower with the focused and undefended attention of an eleven-year-old who had been right about everything and knew it and was not going to mention it, which was, A. Rhombus thought, a remarkable quality in a person of any age.

He watched the cello.

He had been watching the cello since yesterday, when it had appeared in the market square for the first time and leaned against a market stall with the absolute assurance of an object that knows it belongs somewhere and has arrived. He had looked at it in the way he had looked at the logogram — with the full rigour of a creature who was not going to admit to being moved until he had ruled out every other explanation.

He had ruled out every other explanation.

He took three steps forward.

He was now close enough to see the grain of the wood, the slight scorch of the bow's passage, the golden print on the body that had not faded — that was not going to fade, that was, the between-spaces knew, as permanent as a

property of the instrument now, the way some things become part of the thing they have touched.

He said, to no one in particular, to the cello, to the market square, to the cold Tuesday morning:

What does it do.

Katoflio did not look up from flower twenty-five.

Further experiment required, he said.

A. Rhombus was quiet for a moment.

Then he reached into his coat and took out a notebook. Small.

Unannounced. The kind of notebook a creature acquires without quite deciding to acquire it, the way you find yourself in a particular place at a particular time and discover you have been on the way there for longer than you knew.

He wrote: *What does it do. Further experiment required.*

He looked at this.

He did not cross it out.

He was three steps closer than yesterday and one notebook more than he had been, and neither of these things had been announced or argued or voted on, and he was not, he decided, going to classify them today. Today he was going to stand in the market square and monitor conditions and write things in an unannounced notebook and not call it anything.

Tomorrow he might call it something.

Today: this.



In the afternoon, when the market had quieted and the bread had been sold and the shadows had done their full day's work of pointing, katoflio found the parenthesis.

He had been going through his notebook, adding cross-references between the flower data and the bread data and the logogram record, when he turned to the first page — the page he had never quite gone back to, the page from before the experiment had a name, before it had data, the page that had only one thing on it, the mark that had been there since the beginning.

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He looked at it.

He had always thought it was an annotation of some kind. A notation he had made and forgotten the meaning of. But now, with forty-three days of data behind him and two notations systems and a cello in the market square and a scientist home with ongoing angles, he looked at it differently.

He took it to A. Octagon.

She looked at it for a long time.

It's a parenthesis, he said.

Yes, she said.

It's open, he said.

Yes.

Is it waiting to be closed?

A. Octagon thought about this. She thought about the membrane and the door and the way she had stepped through herself. She thought about the Fermat pencil and the logogram and the standing wave. She thought about the

Higgs, which was present this morning in the background of the market square — not announced, not counted, simply there, the way properties of air are there, the way cedar is there, the way the frequency of residence is there in everything that has stayed long enough to be part of the place.

She thought about both worlds, simultaneously, warm.

No, she said. *I think it's just open. I think that's what it means.*

Katoflio wrote this down.

He filed it under: **further experiment required.**

He drew a small flower next to it, because he drew flowers next to the things that mattered most, which was not a methodology he had decided on but one he had arrived at incrementally, in the way of all the best methodologies.

The between-spaces held this.

The between-spaces held all of it — the Provost's handwriting in the official record, large and honest and his; the cello against the stall, down and not away; A. Rhombus's unannounced notebook; the bread in its new rhythm; the two notebooks side by side with their different grammars running the same experiment; the parenthesis, open; the cable, warm; the amber, holding.

They updated their file one last time.

the between-spaces: condition: ongoing.

classification: corridor. cable. amber. home.

status: we did not ask for this.

status: we are not sorry.

status: we are, in the technical sense, full.

They did not elaborate on full.

Full was its own elaboration.



In the morning — the next morning, Wednesday, which was the morning after Tuesday, which was not a Tuesday and therefore not the day anything important was supposed to happen, but which had not, apparently, received this information — katoflio arrived at the market square at half past early with his notebook and his three pencils and sat down at his usual table and looked at the hole.

The hole looked back, the way it always did — cedar-scented, warm, the property of a market square that had been changed by what had passed through it and carried the change permanently now, the way good instruments carry the frequency of everything they have played.

Katoflio said: **morning.**

He had been saying this for forty-three days. He had been saying it to the data, to the experiment, to the shadow, to the frequency that was arriving through the graphite of his pencil, to the scientist who had left and was coming back and had come back and was here, to the world on the other side of everything that he had been corresponding with in the grammar of logograms and shadows and bread.

He said it the way he always said it: simply, scientifically, without expecting anything, because the experiment required consistency and consistency required that you say the thing regardless of whether the thing said something back.

The hole said: *morning.*

Not with a voice. Not dramatically. With the cedar-smell deepening, with the shadow moving its small movement, with the warm quality of the air increasing by the particular increment that the between-spaces recognised — through the cable, through the amber, with the full fidelity of a medium that had been permanently tuned — as: *present. Here. Continuing.*

Katoflio wrote, in the largest letters in his notebook:

Day 44. 06:47. RESPONSE RECEIVED.

He paused.

He wrote, below it, in letters that were somehow simultaneously the largest and the smallest he had ever written, the letters of a person who has arrived at the thing they were always going to arrive at and knows it:

Further experiment required.

Positive indicator.

The experiment is running.

He drew a flower.

The shadow arrived.

The cedar held.

The accordion trees, somewhere, breathed.

The hummingbird green, somewhere, settled into its chord.

The cello, leaning against a market stall in a Flatland market square, continued to be present in the way of things that are down and not away — not played, not silent, simply: here, available, the frequency of holding made wood and string and ready.

The between-spaces held both markets, warm, the cable carrying signal in both directions, the amber full of everything that had passed through and stayed.

The Provost's handwriting, in the official record, in the Grand Polygon, in Flatland:

THE FREQUENCY OF RESIDENCE

And in the market square, in an open notebook, next to a small careful flower:

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Open.

Still open.

Still warm.



fig. 21: final

[Tuesday. Morning. Cedar.]

[a market square, assembled.]

[a hole, present. warm.]

[a scientist, approximately pentagonal, here.]

[a hedgehog, home. thinking about lunch. playing.]

[a child, on flower twenty-five.]

[a cello, down. not away.]

[a rhombus, three steps closer. writing in a notebook.]

[a Provost, in the Grand Polygon, looking at his handwriting.]

[the handwriting: honest. his. not crossed out.]

[in the official record: THE FREQUENCY OF RESIDENCE.]

[in an unofficial margin: I believe this is sufficient grounds.]
[the Higgs: present. not counted. ordinary. here.]
[the accordion trees, somewhere: breathing.]
[the hummingbird green, somewhere: C-sharp, chord, held.]
[the between-spaces: full. not sorry. holding both.]
[the cable: warm. running. permanent.]
[the amber: everything. still.]
[morning said.]
[morning answered.]
[morning said again.]
[the open parenthesis:]
[(
[still open.]
[the book: complete.]
[the experiment: running.]
[the frequency: resident.]



Dedicated, without announcement, to everyone who kept the parenthesis open.

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