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PARTICLES

The Uncertainty Principle states that you can know where a particle is, or you can know where it's going, but you can't know both at the same time.

The same, it turns out, is true of people.

And when you try, when you look too closely, you get the Observer Effect. By trying to work out what's going on, you're interfering with destiny.

A particle can be in two places at once. A particle can interfere with its own past. It can have multiple futures, and multiple pasts.

The universe is complicated.

Saturday 3 July

[Minus three hundred and five]

My underwear is in the apple tree.

I'm lying in the grass, staring up through the branches. It's late afternoon and the rest of the garden is lemonade sunshine, but under here it's cool and dark and insecty. When I tilt my head back, the whole garden is upside-down—and my laundry with it, festooned like the world's saddest bunting.

Déjà vu flattens me, and I have the stupidest thought: *Hey, Grey's home.*

When our clothesline broke a few years ago, my grandfather Grey was underneath it. "Balls and buggery to the flames of hell!" he roared, flinging the wet clothes into the trees to dry. He loved the effect so much, he insisted we repeat it every time the sun came out.

But Grey died last September, and we don't do things like that anymore.

I shut my eyes and recite pi to one hundred decimal places. When I open them, the apple tree still blossoms with underwear. It's a throw-back to how things used to be—which means I know exactly who to blame.

Then I hear his voice saying my name, floating towards me over the bushes.

“Gottie? Yeah, still a total Mensa patient.”

Rolling onto my front, I peer through the trees. Across the garden, my brother Ned is coming out of the back door. Six foot of stubble and snakeskin leggings, and a clothespin clipped to his T-shirt. Since coming home from art school a couple of weeks ago, he's been making a pastiche of Grey's summers; dragging our grandfather's things out of the shed, rearranging furniture, playing his records. He settles himself on the grass, swigging a beer and air-guitaring with his other hand. Perpetual motion.

Then I see who's following him, and instinctively duck into the grass. Jason. His best friend, and bass player in their band. He slouches slowly to the ground, where I stare a hole in the back of his leather jacket.

“It's past seven,” Ned is saying. “Grots'll be home soon, if you wanna say hi.”

I wrinkle my nose at the nickname. *Kla Grot—little toad*. I'm seventeen!

“It's that late?” Jason's voice is a low rumble. “We should call the others, have band practice here.”

No, don't do that, I think. *Shoo*. It's been one thing, having Ned home from art school these past couple of weeks, bringing the house alive with music and noise and mess. I don't want Fingerband here too, squawking

their guitars all night and talking, talking, talking. Not when I've been an elective mute since September.

Then there's Jason. Blond, bequiffed, blue-eyed. Beautiful. And, if you want to get technical about it, my ex-boyfriend.

Secret ex-boyfriend.

Ugh.

Aside from the funeral, this is the first time I've seen him since the end of last summer. This is the first time I've seen him since we were having sex in the sunshine.

I didn't even know he was back. I don't know how I missed it—our village, Holksea, is the size of a postage stamp. Barely enough houses for a Monopoly set.

I want to throw up. When Jason left for college, this was not how I pictured us seeing each other again—with me lurking in the shrubbery like Grey's vast stone Buddha. I'm frozen, compelled to stay where I am, staring at the back of Jason's head. It's too much for my heart to take, and not enough.

Then Umlaut appears from nowhere.

A ginger blur through the garden, landing with a *meow* next to Ned's cowboy boots.

"Yo, midget," says Jason, surprised. "You're new."

"That's Gottie's," Ned non-explains. Getting a kitten wasn't my idea. He appeared one day in April, courtesy of Papa.

Ned stands up, scanning the garden. I try to blend, a five-foot-nine-inch leaf, but he's already strutting towards me.

"Grotbag." He raises one cool eyebrow. "Playing hide and seek?"

"Hello," I reply, rolling on my back and staring up at him. My brother's face is a reflection of mine—olive skin, dark eyes, beaky nose.

But while he lets his brown hair fall unbrushed around his shoulders, mine hasn't been cut in five years, and is twisted up in a permanent topknot. And only one of us is wearing eyeliner. (Clue: it isn't me.)

"Found ya," Ned winks. Then, quick as a flash, he whips his phone from his pocket and snaps me.

"Uuuhhnnn," I complain, hiding my face. One thing I haven't missed while he's been AWOL all year: Ned's paparazzo habit.

"You should come on out," he calls over his shoulder. "I'm making *frikadeller*."

The prospect of meatballs is enough to coax me out, despite myself. I stand up and trail him through the shrubbery. Out on the grass, Jason's still lounging among the daisies. He's obviously found a new hobby at college—there's a cigarette half-smoked in his hand, which he lifts in a half-wave, half-smiling.

"Grots," he says, not quite meeting my eye.

That's Ned's nickname for me, I think. You used to call me Margot.

I want to say hello, I want to say so much more than that, but the words vanish before they reach my mouth. The way we left things, there's still so much unsaid between us. My feet grow roots while I wait for him to stand up. To talk to me. To mend me.

In my pocket, my phone weighs heavy, untexted. He never told me he was back.

Jason looks away, and sucks on his cigarette.

After a pause, Ned claps his hands together. "Well," he says brightly. "Let's get you two chatterboxes inside, there's meatballs to fry."

He struts off to the house, Jason and I walking silently behind. When I reach the back door, I'm about to follow them into the kitchen, but something stops me. Like when you think you hear your name, and your

soul snags on a nail. I linger on the doorstep, looking at the garden. At the apple tree, with its laundry blossoms.

Behind us, the evening light is condensing, the air thick with mosquitoes and honeysuckle. I shiver. We're on the cusp of summer, but I have the sense of an ending, not a beginning.

But perhaps it's that Grey is dead. It still feels like the moon fell out of the sky.

Sunday 4 July

[Minus three hundred and six]

I'm in the kitchen early the next morning, scooping *birchermuesli* into a bowl, when I notice it. Ned's reinstated the photographs on the fridge, a decorating habit of Grey's I always hated. Because you can see the gap where Mum should be.

She was nineteen when Ned was born and she moved home to Norfolk, bringing Papa with her. Twenty-one when she had me, and she died. The first photo I show up in after that, I'm four and we're at a wedding. In it, Papa, Ned, and I are clustered together. Behind us towers Grey, all hair, beard, and pipe—a supersize Gandalf in jeans and a Rolling Stones T-shirt. I smile toothlessly: prison-cropped hair, shirt and tie, buckled shoes, trousers tucked into grubby socks. (Ned is in a pink rabbit costume.)

A couple of years ago, I asked Grey why I'd been dressed as a boy, and he'd chuckled, saying, "Gots, man—no one ever dressed you any

which way. That was all you. Right down to that weird jam with the socks. Your parents want to let you and Ned do your own thing.” Then he’d wandered off to stir the dubious stew he was concocting.

Despite my alleged childhood insistence on dressing like Mr. Darcy, I’m not a tomboy. They might be in a tree, but my bras are pink. Awake all last night, I painted my toenails cherry red. Break open my iPod, and pop songs spill out. Hidden in my wardrobe—albeit underneath a hundred *doppelgänger* sneakers—lurks a pair of black high heels. And I believe in love on a Big Bang scale.

That’s what Jason and I had.

Before leaving the kitchen, I flip the photo over, sticking it down with a magnet.

Outside, it’s an English cottage-garden idyll. Tall delphiniums pierce the cloudless sky. I scowl at the sunshine and start heading to my room—a brick box annex beyond the apple tree. Almost immediately, my foot hits something solid in the long grass, and I go flying.

When I pick myself up and turn around, Ned is sitting up, rubbing his face.

“Nice dandelion impression,” I say.

“Nice wake-up call,” he mumbles.

From the house, through the open back door, I hear the phone ring. Ned cat-stretches in the sun, unruffled. Unlike his velvet shirt.

“Did you just get home?”

“Something like that,” he smirks. “Jason and I headed out after dinner—Fingerband rehearsal. There was tequila. Is Papa around?”

As if cued by a hidden director, Papa floats from the kitchen, a mug in each hand. In this house of big stumpy giant people, he’s a *Heinzelmännchen*—a pixie-pale elf straight out of a German fairy tale. He’d be invisible if it weren’t for his red sneakers.

He's also about as down to earth as a balloon, not batting an eye at how we're scattered on the grass as he perches himself between my upside-down cereal bowl and me. He hands Ned a mug. "Juice. Here, I have to talk both of you to a proposition."

Ned groans, but gulps the juice, emerging from the mug slightly less green.

"What's the proposition?" I ask. It's always disconcerting when Papa tunes in to reality enough to run ideas past us. Papa seriously lacks *Vorsprung durch Technik*—German precision and efficiency. Not just a blanket short of a picnic: he'd forget the picnic too.

"Ah, well," Papa says. "You both remember next door, the Althorpes?"

Automatically, Ned and I turn to look across the garden, at the house beyond the hedge. Almost five years ago, our neighbors moved to Canada. They never sold the house, so there was always the promise of a return along with the For Rent sign and its constant parade of tourists, vacationers, families. It's been empty for the past few months.

Even after all this time, I can still picture a grubby little boy in coke-bottle glasses squeezing through the hole in the hedge, waving a fistful of worms.

Thomas Althorpe.

Best friend doesn't even begin to cover it.

Born in the same week, we'd grown up side by side. Thomas-and-Gottie—we were inseparable, trouble times two, an el weirdo club of only us.

Until he left.

I stare at the scar on my left palm. All I remember is a plan to swear a blood brothers pact, a promise to talk to each other. Three thousand miles wasn't going to change anything. I woke up in the E.R. with a

bandage on my hand and a black hole in my memory. By the time I came home, Thomas and his parents were gone.

I waited and waited, but he never wrote me a letter, or emailed, or Morse code messaged, or anything we'd said we'd do.

That autumn, they talked about putting me ahead a year at school. I wrote to Thomas about it—though I never sent the letter, and in the end I stayed where I was. My hand healed; my hair grew long. Little by little, I grew up. Little by little, I forgot about the boy who forgot me first.

“The Althorpes?” Papa interrupts my thoughts. “You remember? They’re getting divorced.”

“Fascinating,” croaks Ned. And even though he abandoned me, my heart skips a little on Thomas’s behalf.

“Indeed. Thomas’s mum, I was on the phone with—she’s moving home to England in September. Thomas is coming with her.”

There’s a strange sense of inevitability to this announcement. Like I’ve been waiting for Thomas to come back this whole time. But how dare he not even tell me! To have his mum call Papa! *Chicken*.

“Anyway, she’d like that Thomas is settled back before starting school, which I agree,” he says, adding a *harrumph*, a classic Papa telltale sign that there’s more to the story than he’s letting on. “It’s a bit last-minute, her plan, but I offer that he stay with us this summer. That’s . . . that’s my proposition.”

Unbelievable. It’s not enough that he’s coming home, but he’ll be on my side of the hedge. Unease blooms like algae.

“Thomas Althorpe,” I repeat. Grey always told me saying words out loud made them true. “He’s moving in with us.”

“When?” asks Ned.

“Ah.” Papa sips from his mug. “Tuesday.”

“Tuesday—as in *two days’ time*?” I shriek like a tea kettle, all calm evaporating.

“Whoa,” says Ned. His face has reverted to hangover green. “Am I meant to share a bunk bed with him?”

Papa harrumphs again, and launches the *Gotterdammerung*. “Actually, I offered for him to stay in Grey’s room.”

Four horsemen. A shower of frogs. Burning lakes of fire. I may not know my Revelations, but disturbing the shrine of Grey’s bedroom? It’s the apocalypse.

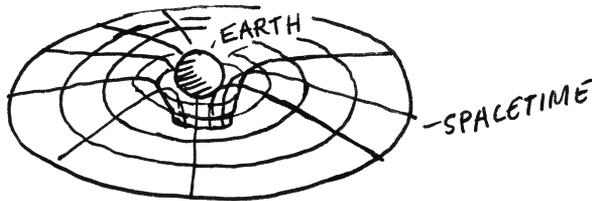
Next to me, Ned quietly throws up on the grass.

Monday 5 July

[Minus three hundred and seven]

“Spacetime!” Ms. Adewunmi scrawls on the whiteboard with a marker-pen swoosh. “The four-dimensional mathematical space we use to formulate—what?”

Physics is my favorite subject, but my teacher is way too energetic for 9 a.m. For a Monday. For any day after I’ve been awake all night, which since October is basically always. *Spacetime*, I write down. Then, for some inexplicable reason—and I instantly scribble it out—*Thomas Althorpe*.



OBJECTS CAUSE SPACETIME TO CURVE

“E equals McSquared,” mumbles Nick Choi from the other side of the classroom.

“Thank you, Einstein,” says Ms. Adewunmi, to laughter. “That’s the theory of special relativity. Spacetime—space is three-dimensional, time is linear, but if we combine them, that gives us a playground for all sorts of physics fun. And it was calculated by . . . ?”

Hermann Minkowski, I think, but instead of raising my hand, I use it to stifle a yawn.

“That guy, Mike Wazowski!” someone yells.

“What, from *Monsters, Inc.*?” asks Nick.

“They travel between worlds, don’t they? *McSquared.*” I hear from behind me.

“Minkowski,” Ms. Adewunmi attempts over whoops and catcalls. “Let’s try to focus on reality . . .”

Good luck with that. It’s the last week of term, and the atmosphere is as fizzy as carbon dioxide.

“Anyone else for interstellar dimensions? How would you describe a one-way metric?” *A wormhole*, I think. A one-way metric is a blast from the past. That’s how I’d answer. Ned bringing back Grey by repatriating his Buddhas, leaving crystals in the bathroom sink, cooking with way too much chili. Jason, smiling at me in the garden after almost a year.

Thomas Althorpe.

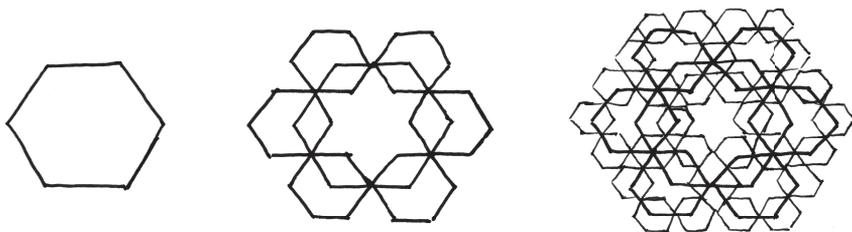
But I’ve never spoken up during any of Ms. Adewunmi’s lessons. It’s not that I don’t know the answers. And back at my old school, I never minded saying so and having everyone stare at the math-genius-prodigy-freak-show-nerd. We’d all known each other since forever. But like a lot of the villages along the coast, Holksea’s too small to support a real high school. At sixteen, everyone transfers to the giant school in town.

Here, classes are twice the size and full of strangers. But mostly, it's that ever since the day Grey died, talking exposes me. As though I'm the opposite of invisible, but everyone can see right through me.

When Ms. Adewunmi's gaze lands on me, her eyebrows go shooting off into her afro. She knows I know the answer, but I keep my mouth clammed shut till she turns back to the whiteboard.

"All right, then," she says. "In September, we'll move on to fractals."

Fractals, I write down. *The infinite, self-replicating patterns in nature. The big picture, the whole story, is just thousands of tiny stories, like a kaleidoscope.*



Thomas was a kaleidoscope. He turned the world to colors. I could tell you a hundred stories about Thomas, and it still wouldn't be the big picture: he bit a teacher on the leg. He got a lifetime ban from the Holksea summer fair. He put a jellyfish in Megumi Yamazaki's lunch box when she said I had a dead mum, and he could thread liquorice shoelaces through his nose.

But it was more than that. According to Grey, we were *wolf cubs raised in the same patch of dirt*. Thomas didn't belong on his side of the hedge, where the lawn was neatly clipped and his scary dad's rules were practically laminated. And I didn't quite belong on mine, where we were allowed to roam free. It wasn't about like or love—we were always together. We shared a brain. And now he's coming back . . .

I feel the same way as when you flip a rock over in the garden, and see all the bugs squirming underneath.

The bell rings, too early. I think it's a fire drill, till I see everyone around me holding worksheets in the air. The whiteboard is covered in notations, none of them about fractals. The clock suddenly says mid-day. And, one by one, Ms. Adewunmi is plucking paper from hands, adding them to her growing pile.

Panicked, I look in front of me. There's a worksheet there, but I haven't written on it. I don't even remember being given it.

Next to me, Jake Halpern hands in his worksheet and slouches away, his bag knocking against me as he slides off the stool. Ms. Adewunmi snaps her fingers.

"I . . ." I stare at her, then back at my blank paper. "I ran out of time," I say, lamely.

"All right then," she says, with a small frown. "Detention."

I've never had detention before. When I check in after my final lesson, a teacher I don't recognize stamps my slip, then waves a bored hand. "Find a seat and read. Do some homework," he says, turning back to his grading.

I make my way through the hot, half-empty room to a seat by the window. Inside my binder is the college application packet I got in homeroom this morning. I shove it to the bottom of my book bag, to be dealt with *never*, and pull out Ms. Adewunmi's worksheet instead. For lack of anything better to do, I start writing.

THE GREAT SPACETIME QUIZ!

Name three key components of $E = MC^2$.

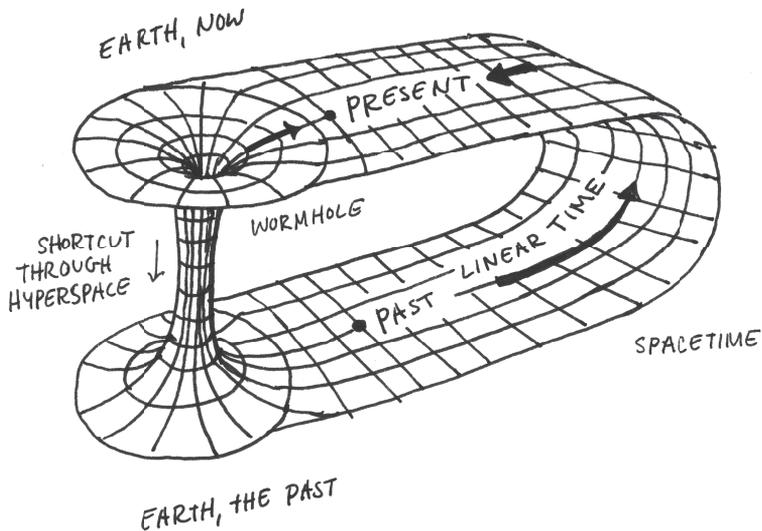
(1) The speed of light NEVER changes. (2) Nothing can travel faster than light. Which means (3) depending on the observer, time runs at different speeds. Clocks are a way of measuring time as it exists on Earth. If the world turned faster, we'd need a new type of minute.

What is general relativity?

It explains gravity in the context of time and space. An object—Newton's apple tree, perhaps—forces spacetime to curve around it because of gravity. It's why we get black holes.

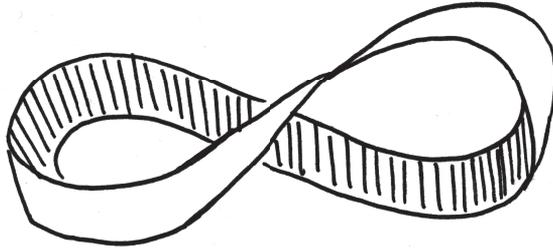
Describe the Gödel metric.

It's a solution to the $E = MC^2$ equation that "proves" the past still exists. Because if spacetime is curved, you could cross it to get there.



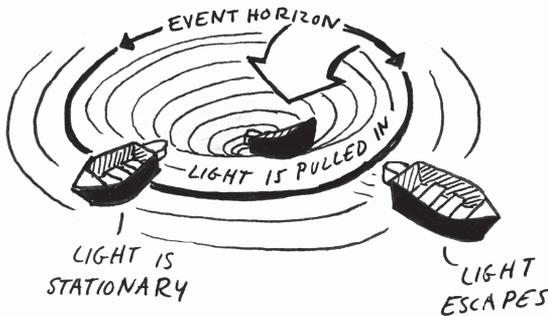
What is a key characteristic of a Möbius strip?

It's infinite. To make one, you half twist a length of paper and Scotch tape the ends together. An ant could walk along the entire surface, without ever crossing the edge.



What is an Event Horizon?

A spacetime boundary—the point of no return. If you observe a black hole, you can't see inside. Beyond the event horizon, you can see the universe's secrets—but you can't get out of the hole.



Bonus point: write the equation for the Weltschmerzian Exception.

?!

Even after I stare at the final question for several centuries before giving up, it's still only 4:16 p.m. Forty-four minutes till I can escape.

Resisting the urge to nap, I start doodling; the Milky Way, constellations of question marks. Geometry jokes, spaceships, Jason's name written then scribbled out, over and over and over. Then Thomas's, same thing.

When I look down at the worksheet again, it's a total mess.

4:21 p.m. I yawn and open my notebook, planning to copy my answers on to a clean page.

$E=MC^2$, I begin.

And the second I write the ², the whole equation starts to shimmer.

Um . . . I yawn and blink, but there it is: my handwriting is definitely *shimmering*. All it needs is a pair of platforms and a disco ball.

I flip the notebook shut. Its cover shows it's a standard college-ruled notebook. The cover says it's standard A4, medium-ruled in faint, parallel blue lines. Heart fluttering, I fumble a couple of times opening it back to the right page. Those ruled lines are now rippling like sound waves across the paper.

Once, I read that lack of sleep can make you hallucinate if you stay awake long enough. But I thought it meant migraine aura-type black spots in front of your eyes, not cartoon-animated notebooks. As if to prove me wrong, the equation begins to spin. Distantly, I'm aware I should probably be panicking. But it's like trying to wake up from a dream—you give yourself the instruction, and nothing happens.

Instead, I yawn and look away, out of the window, and begin counting backwards from a thousand in prime numbers: 997, 991 . . . My curiosity gets the better of me around ninety-seven, and I glance back at the notebook. It's not moving. There's my pen scrawl on lined paper, nothing more.

All right, then, as Ms. Adewunmi would say. It's the summer flu, or the temperature in here, or the being-awake-since-yesterday. I shake my shoulders back, pick up my pen.

I'm writing Jason's name again when the notebook disappears.

Seriously.

My pen is hovering in the air where the page should be and suddenly now isn't. It's so ludicrous, I can't help it: I laugh.

"It's not giggle time, Miss Oppenheimer," warns the teacher.

Ms., I correct in my head. And then, "giggle time"? What, are we, seven? I've had sex! I've made irreversible decisions, awful ones, huge ones. I'm old enough to DRIVE.

He frowns at me—I'm grinning like a loon, so I pretend to write on an invisible notebook until, satisfied, he turns away.

I look back at the absence-of-notebook, and swallow another cackle. Because I'm wrong: it's not invisible. If it were, I'd be able to see the desk underneath. But instead, there's a rectangle of nothing. An absence. It looks sort of like the black and white fuzz when the TV won't tune in, or how I imagine the indescribable gloop beyond the boundaries of the universe, the stuff the Big Bang is expanding into.

Am I going bananas?

I bend down, peering underneath the desk. Lumps of gum, a Fingerband sticker, and graffiti on solid wood.

But when I sit upright again, there's still that rectangle of television fuzz.

It's not growing, or changing, or moving. I slump in my seat, and stare at it, hypnotized. Drifting back to five years ago. When there was a boy.

An attic.

And a first kiss that wasn't.

“Bawk, bawk, bawk,” Thomas says from the other side of the attic. “Chicken. Bet there’s not even arteries in your hands.”

“Mmmm.” I don’t look up from the anatomy encyclopedia. Like everything else in Grey’s bookshop, it’s second-hand, and there’s graffiti on the pictures. “Let me check.”

He’s wrong, you do have arteries in your hands, but I’ll do the blood pact anyway. I just want to look at this book first. The pages with boy parts. I turn it on its side, tilt my head. How does that even . . . ?

“G, what are you doing?” Thomas peers over my shoulder.

I slam the book shut.

“Nothing! You’re right. No arteries,” I lie, my face bright red. “Let’s do it.”

“Gimme your hand,” he says, waving the knife. “Oops.”

The knife flies through the air. When Thomas turns to get it, he topples over a stack of books.

“What are you kids doing up there?” Grey bellows from the floor below.

I yell down the stairs, “Nothing. Thomas is just reshelving. We thought we’d use this wacky new system called the al-pha-bet.”

There’s a muffled curse and a giant rumble of laughter. I turn back to Thomas, who’s retrieved the knife and is carving our initials into a bookcase. He won’t be here tomorrow. We’ll never see each other again. On what stupid planet is that even possible?

And it means there’s about four hours left to do something I’ve been thinking about for weeks.

“Thomas. No one is ever going to kiss you,” I announce. He looks up, blinking owlishly behind his glasses. “And, no one’s ever going to kiss me either.”

“OK,” he says, and takes a huge inhaler puff. “We should probably do that then.”

We stand up, which is a problem. I grew ninety-three feet this summer. The eaves are low and I hunch, but I'm still six inches taller than him. Thomas clambers on a stack of books, then we're the right mouth height. He leans forward, and I suck peanut butter off my braces. Here we go . . .

"Ow!"

His head hits my chin. The books slide out from underneath him. Our hands flail in the air, grabbing at each other, and we smash into the bookshelves. We're still untangling ourselves when Grey comes stomping in, chasing us downstairs to the front door, hands flapping like big hairy butterflies.

"It's raining," I pretend to whine. It's the seaside, I don't mind getting wet, but I want to hear what he'll say—

"You're a twelve-year-old girl, not the Wicked Witch of the West," Grey booms, slamming the door behind us as I giggle.

Outside, Thomas and I teeter on the porch, the air soggy with rain. He looks at me, his glasses smeared, his hair curly with humidity. His hand forms a fist. Little finger pointed straight out at me.

A salute, a signal, a promise.

"Your house?" he asks. I don't know whether he means for a kiss, or the blood pact. Or both.

"I don't know how to be, without you," I say.

"Me either," he says.

I lift up my hand, and curl my finger into his. Then we jump off the step. Into the rain.

A paint-stained finger taps on the fuzz in front of me, and instantly, it's a notebook again. I blink, looking around me, dazed.

"What are you doing?" Sof is standing in front of the desk.

Silhouetted against the windows, she's just an outline—pointy hair, triangle dress, stalk legs, light blazing all around her. An avenging angel, come to rescue me from detention!

I'm confused, sleepy. We've barely been on corridor nodding terms all year, yet here she is, throwing her portfolio on the ground and her body into the chair next to mine.

After blinking the sun out of my eyes, I blink again when I see her curly hair done up like fro-yo, red lipstick, rhinestone glasses. Sometime between now and whenever I stopped noticing, my erstwhile best friend has remade herself into a fifties musical.

"Uh, hi," I whisper, unsure whether we're allowed to talk. Not because it's detention, but because we don't hang out the way we did at our old school.

She leans over to peer at my notebook.

"Huh," she says, tapping my doodles, where I've scribbled out both Jason's and Thomas's names so they're illegible. I suppose this explains my dream. "Is this your artistic comeback?"

It's a pointed remark. Back in ninth grade, Sof opted for art, geography, German. I went with her choices to save making my own; which sums up our entire friendship. I never told her I had different plans, once we switched schools right before junior year—it was easier to wait for her to notice I wasn't at the next easel.

"Physics quiz," I explain.

"Whatcha do to get thrown in the gulag?" she croaks. For a white-witch-tiger-balm-super-hippie, she sounds like she gargles cigarettes for breakfast.

"Daydreaming." I fiddle with my pen. "What about you?"

"Nothing," she says. "It's time to spring you."

When I look up at the clock, she's right. The teacher's gone. The

room's empty. Detention ended an hour ago. Huh. It doesn't feel like I've slept for that long.

"They lock the bike sheds at five." She stands up, fiddling with the strap on her portfolio. "Do you want to catch the bus with me?"

"OK . . ." I say, only half paying attention. I stare at the notebook: it's only paper, but I shove it right to the bottom my book bag like it's to blame for what just happened.

Was I really asleep? Is that where the last hour went? I think back to Saturday, a whole afternoon lost before I found myself under the apple tree.

Perhaps I am insane. I take that thought, and shove it as far down as it will go too.

Sof's waiting for me at the door. The silence that rides between us all the way home is so heavy, it deserves its own bus ticket.

Monday 5 July (Evening)

[Minus three hundred and seven]

Fels. Papier. Schere.

It's after dinner, and we've been standing outside Grey's bedroom door playing rock-paper-scissors for twenty minutes. Food was one of the three meals in my vast repertoire (baked potatoes and 1. tuna, 2. beans, 3. cheese), eaten in silent disbelief after Papa suggested Ned and I might want to clear out Grey's room.

"Dare you," says Ned. *Fels* beats *schere*.

"You first," I say. *Papier* beats *fels*.

"Best out of, uh, fifty?"

I've only been in there once all year. It was right after the funeral. Ned was leaving for art school in London and Papa was falling apart and pretending he wasn't by hiding at the bookshop, so I did it. Not looking left or right, I took a garbage bag and I swept in everything I

needed to—deodorant sticks, beer bottles, dirty plates, half-read newspapers. (Grey’s cleaning philosophy: “Here be dragons!”)

Then I went through the house, picking out the things I couldn’t bear to look at—the enormous orange casserole dish and the Japanese lucky cat; his favorite tartan blanket and a lumpy clay ashtray I made; dozens of tiny Buddha statues tucked into shelves and corners—and I put it all in the shed. I did the same with his car. Papa didn’t notice, or didn’t say anything, not even when I rearranged the furniture to hide the spectrum of crayon marks on the wall, marking our heights as we grew up—Mum, Ned, me. Even Thomas, occasionally.

Then I shut Grey’s bedroom door, and it hasn’t been opened until now.

Paper beats rock, again. I win.

“Whatever,” shrugs Ned, no big deal. But I notice his hand rests on the doorknob for a full minute before he turns it. His nails are pink. When he finally pushes the door open, it creaks. I hold my breath, but no swarm of locusts emerges. There are no earthquakes. It’s exactly as I left it.

Which is bad, because there are books everywhere. Double-shelved from wonky floor to sloping ceiling. Piled up against the walls. Stacked under the bed. Word stalagmites.

Ned clambers past me and yanks open the curtains. I watch from the doorway as the evening sunlight pours in, illuminating approximately eleventy million more books, and sending up dust tornadoes.

“Whoa,” says Ned, turning around, taking it all in. “Papa told me you cleaned it.”

“I did!” God. I lurk in the doorway, afraid to go in any further. “Do you see any moldy coffee mugs?”

“Yeah, but . . .” He turns away, and starts fiddling with cupboard

doors and pulling things open. There are more books inside a chest-of-drawers. After Ned opens the wardrobe, he lets out a long, low whistle.

He doesn't say anything, just stands there staring as if he's seen something . . . odd. As in disappearing-notebook-hole-in-the-universe odd.

"Have you found Narnia in there or something?"

"Grots."

"What is it?" I take a step into the room, keeping my eyes on Ned, and not the rest of it—the photographs of our mum everywhere. The huge painting on the wall above the bed.

"Grots," Ned says again, not looking up, talking to the wardrobe. "Fuck. Gottie. His shoes are still in here."

Oh. There's that swarm of locusts.

"I know."

"Couldn't face it, huh?" Ned gives me a sympathetic look, then turns to sit on the piano stool. When Grey was steamed on homemade wine, he'd leave his door open and tunelessly pound out music hall hits. "It's not the melody that counts, it's the volume," he'd boom, not listening to our many declarations otherwise.

Ned runs his hands up and down the keys. The notes emerge in a series of muffled plinks, but I recognize the song.

Papa's left a stack of flattened out cardboard boxes on the bed. I walk round to the other side so I don't have to see the painting, and start assembling them. I'm careful not to touch the bed itself, even though it's covered in a dust sheet. This is where Grey slept. In twenty-four hours, Thomas is going to erase his dreams.

"Man, this is going to take forever!" Ned exclaims, even though he hasn't done anything yet. After a final ten-finger kerplink on the piano,

he spins round idly on the stool. “You shouldn’t have to be in here, doing this. It’s Papa’s grand plan.”

“Do you want to tell him that, or shall I?”

“Ha.” He bounds past me to a book stack and starts shuffling through it—not so much organizing as rearranging. Fiddling. Flicking through and reading bits of things. He glances up at me. “Grotbag. What do you think Thomas did?”

“What do you mean?” I frown at the box in front of me. I’m trying to line up the books perfectly perpendicular, but one of them has warped pages from being dropped in the sea, and it’s wonkifying everything.

“You know,” says Ned. “To get sent back here. Banished to Holksea.”

“Banished?”

“C’mon, there’s no way this settle-in-for-the-summer story holds up,” Ned continues, juggling a book. “It’s so last-minute—the flight must have cost a fortune. Nah, it’s punishment for something—or getting him away from whatever he’s done. I bet he’s pulled a Mr. Tuttle.”

Mr. Tuttle was Thomas’s hamster. A furball who escaped at bedtime seventeen nights in a row, until his dad worked out what was going on and bought a padlock. “Oh dear,” Thomas would sorrowfully declare, having opened the cage not five minutes before. “Mr. Tuttle has got out *again*. I’ll sleep over at G’s in case he’s there.” His bag would already be packed.

“C’mon,” insists Ned. “*You* know what Thomas was like.”

Huh. It hasn’t occurred to me to wonder *why* he’s been sent home so quickly.

A hammering on the half-open door breaks my thoughts wide open.

“Yo, Oppenheimer! Answer your phone much? I’ve been looking all over, have you seen the time—” Jason stops when he sees me. There’s a

pause as he literally shifts and readjusts: stepping back and leaning against a bookshelf by the door, arranging himself just so, before he smiles lazily and amends, “Oppenheimers.”

My throat plays rock-paper-scissors and settles on *rock*.

“Gottie.” He meets my gaze this time, blue eyes searching mine before he weighs out his words, one by one. “Again. All. Right?”

I have a book in one hand, the other opening and closing on empty air, trying to hold on as we look at each other.

Oblivious, Ned drops the book he’s holding onto a stalagmite, which promptly topples. He leaps across the falling books, offering his fist for Jason to bump.

“Shiiit, mate,” Ned says, as they perform a complicated handshake. It seems to involve a lot of thumbs. “Is Niall going ballistic?”

“The usual.” Jason reverts to slow motion as the handshake ends. He sighs, “You ready?”

“Grots.” Ned’s practically out the door already as he turns to me. “Swaps?”

I concentrate on assembling another box, fumbling over the corners. “What’s the swap?”

“I forgot, we’ve got a Fingerband meeting. Look, do the books? Get them in the car, and I promise I’ll take care of the rest of it.” When I look at him, he adds softly, “His clothes.”

“Seriously?” I can’t decide if Ned’s trying to get out of packing the books, or shield me from everything else. Grey’s shoes. The photographs. *The Worst*.

I steel myself to look up at the painting on the wall. My final art exam from last year. It’s hard, being the straight one in a house with Dumbledore and Peter Pan and Axl Rose, being friends with bangle-wearing glittered artists. So I’d tried, and I’d painted the canal. At the school

exhibition, Papa had taken one look at it—a giant blue sausage—and christened it *The Wurst*. Ned had laughed himself silly. I'd pretended I didn't mind, and laughed too.

"Gots, dude." Grey had clamped my shoulder in one giant hand, holding me steady. "You tried something different. You think your brother would attempt anything he wasn't already good at?" We contemplated the sausage for a minute, then he said, "Your mum liked blue."

I tear my eyes away from *The Wurst*, and see Ned is hovering in the doorway, waiting for me to make up my mind.

"Deal," I say.

"Cheers, Grots!" he yells, disappearing across the sitting room. "Jase, I'll grab my gear, see you outside in five."

Then I'm alone with Jason for the first time since the day Grey died.

Soft as a sunset, he smiles. And says, "Margot."

The way it ended between us, a text message from a hundred miles away, I never had the chance to let him go. Instead, I stuffed all my heartbreak in a box like the one I'm packing now, and waited. When he says my name, it floods the room.

I could melt into him. But instead I grin, teeth and terror, try to speak, and—

...

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Jason finally breaks the awkward to murmur, "How's. It. Going?"

"OK!" I answer too loud and too fast. Then, squeakily: "How is . . ."

Shit. My brain blanks on where he's been. We talked every day last summer, I Internet stalked him for weeks in the autumn, but I can't remember where he went to college.

“Nottingham Trent,” he fills in with a slouchy shrug, his eyes not leaving mine. “It’s all right.”

There’s no air in the room, no air in my lungs, as Jason peels himself off the doorway and approaches me. For a second, I let myself hope he’ll slide his arms around my waist, help me forget about this whole horrible year by giving me someone to belong to. Then he flops backwards next to the half-empty box, on to Grey’s bed. I wince.

It’s too much: the combination of Grey’s room and Jason, so close to me. Last October, alone in this empty house and after weeks of trying to work out what we were to each other, I’d asked him. And he’d texted, “I think I can only manage friends for now.” *For now*. I bet my heart on that caveat, and now here he is.

I grip the side of the box, trying to breathe. Concentrate on stacking Grey’s diaries inside the box. Don’t look at *The Worst*. Don’t remember how Jason had laughed at it too, a bit.

“Hey, daydreamer.” He reaches out and touches my arm. “What about you? Had a good year?”

And as he says it, everything inside the box blinks out. It’s no longer a box of books, but a box of nothingness. TV fuzz. Like in detention this afternoon.

Not like detention.

This time, the fuzz is tuning in, forming a picture, swirling, more like, more like—smoke. I can even smell a bonfire. And there’s a flicker of light. My fingers tremble. This can’t be happening, not with Jason here. I lean closer, to check if he dropped a cigarette or something, and I swear I can see the tartan check of our picnic blanket. Our dandelion-strewn lawn. Hear music. I reach my hand out, I can almost touch it—

“Margot? Gottie?” Jason says. “You seem . . .”

His voice is far away, and I feel a sudden tug as though I'm being

y e d i e b
a k n d t e o
n s i h x

I close my eyes as the universe contracts and expands.

“Hey, daydreamer. Brewski?” Jason asks, handing me a can of beer.

I take it, even though I don't want another drink. Sof has been sneaking vodka all night, but one sip left me woozy—floaty. And parties aren't my thing. When Grey wants to celebrate the existence of trees, or the migration of birds, or his annual Last Day of Summer hootenanny, I hover at the edges. Tonight, it's Midsummer's Eve, and I've hidden myself under the apple tree, where I can see everyone, and everyone can't entirely see me. Except, apparently, Jason.

He's already opened it—the “brewski.” Fingerband has started doing this stupid dude-backwards-baseball-cap in-joke. Everything's brewski and broseph and fist bumps. It's idiotic.

“This way, we don't have to keep getting up and down,” Jason adds, plonking a six-pack in front of us, then flopping on to the blanket. Next to me. Um. OK?

“Cool thinking, bro,” I say in a deep voice, then take a sip of the beer—it's warm.

He laughs. “You know we're being ironic?” He twists to look at me, and I look back. In the dark, his eyes are practically navy. “You can't be called Fingerband and go full metal.”

“Full metal?” I take another sip, wishing the beer was cold. It’s a hot night, but Grey has insisted on a huge bonfire. Earlier he was leaping across it, yelling about Vikings. I smile in the dark.

“KISS makeup, safety pins in our noses, shouting about Satan.” Jason attempts devil horns, but it’s tricky, when you’re resting on your elbows.

“Isn’t that punk?” I ask.

Jason laughs, a low rumble as though we’re in on a joke together, but I’m not trying to be funny. I don’t have a clue. Ned’s the musical encyclopedia. I listen to whatever’s on the radio—which Grey tunes to static. I’m not sure why Jason’s even over here, talking to me about music. The most he’s ever said to me in ten years of knowing Ned is, “How’s it hanging, oddball?”

“The point is, it’s cooler if we play metal, but act dorky.” He cracks open another can. The clunk-splooosh is as loud as a firework in the dark garden, but no one looks over at us as he edges closer and murmurs, “Margot. How come you never come to watch us rehearse?”

Because you’ve never asked. Because I’d rather watch paint dry. Because Sof worships Ned and if I tell her you’ve invited me, she’ll make us go—and Fingerband sounds like a goat in a lawnmower.

Across the garden, Sof’s on a blanket with this week’s girlfriend, both of them laughing at Ned’s air guitar. I mentally add Jason’s invitation to the tally of secrets I’m keeping from her.

“You should come along,” he says again. “School’s over, huh?”

“Yeah. I finished my last exam on Friday.” My elbows are getting fuzzy; pins and needles. Is that why he’s talking to me? School’s out, and I’m rolling with the cool kids now?

Across the garden, Ned hollers something and jogs off inside, into the house. When he’s out of sight, Jason leans over my shoulder, nudging me with his chin. “Give me a taste.”

I turn to him, to say he can have the beer, it's gross, and he all of a sudden plants his mouth on mine. I squeak with surprise, into his tongue, but he doesn't laugh. His lips are firm against mine, a question. I kiss him back, but I don't know what to do. I've never kissed anyone before. It's warm and beery, and it's Jason! Why is he kissing me? And then it's . . . I'm . . . We're . . . I float away, closing my eyes.

When I open them, I'm still standing in Grey's bedroom. Only now it's dark, and Jason's gone—and we just had our first kiss.

That's what it seems like, anyway. A memory so vivid, there were sights and sounds and smells and touches. I could sense the scratch of the blanket we were lying on; smell the wood smoke in the air. The taste of beer on his tongue, the roughness of his face against mine. The first of a summer of secret kisses, something that belonged to just me.

And the loss of him is suddenly so real and so raw, I want to cry.

I take a big, juddering gulp of air, trying to fill my lungs, which are pinched and small. I'm so overwhelmed by how much it hurts—missing Jason, *seeing* Jason—it takes me a moment or two before I catch up with what just happened and think: WTF?

I unpack the thought I pushed down after detention today. How a daydream shouldn't last more than an hour. How it shouldn't leave me standing alone in the dark. Why can't I remember Jason leaving, saying goodbye? And what *was* that, inside the box? It felt like I was looking the wrong way through a telescope, to another time. A time when Grey was alive.

A vortex. A one-way metric. But that would mean—

I stumble towards the door, switch on the light, turn around.

Everything's packed. All the books are gone, the boxes too. There are little dust outlines on the shelves. Book ghosts. And the room seems smaller, now that it's empty. The ceiling is lower and the walls are closing in.

Perhaps that's my panic. I don't remember doing this. I sit on the floor because my legs have forgotten how to do "upright," and I try to think.

I touched the television fuzz, and I was with Jason, last summer. An optical illusion? A daydream? *C'mon, Gottie—are you seriously saying it was a wormhole?*

The boxes are packed. The room is empty. I must have done that. My pocket beeps and when I fumble for my phone, there's a text from Jason: Nice to see you again . . . Nothing about me getting sucked into a box, but maybe that's not the kind of thing you put in a text. A text that trails off into three dots, like there's more to come.

Is there such a thing as a split screen vortex? Last summer on one side, this room on another. And you can only tune in to one viewpoint at a time.

It makes total sense. Except for the part where I'm completely crazy!

There's one box still on the bed, and I clamber to my feet to dig through it, fingers fumbling, hoping to find something to explain what I thought I saw. To tell me I'm not going nuts.

There's nothing but odds and ends. A framed photo of my mum where she's a few months older than I am now, and we look so alike it hurts. And a stack of Grey's diaries. He used to note everything down:

a new recipe for spaghetti with apricots (really), a bird's nest on the lawn, when the village shop briefly stopped selling Marmite. He's the only one of us who ate it.

When my scrabbling fingertips hit cardboard, I admit defeat, and tell myself I imagined the whole thing. I've lost a few hours, that's all. Slept on my feet, like a horse in a stable, and dreamed about Jason. Hitting the light switch with my chin, I carry the box outside, to Grey's crappy old VW Beetle.

The car is parked on a hump of grass, skewed at an angle into the hedge, sitting so low that Papa will barely be able to get it over the speed bumps to the Book Barn tomorrow. I have to stand sideways on the small slope to reach the latch, balancing the box on my knee; and as the trunk springs up, the box slides off, bursting open on the grass in a scatter of coins and pages.

"*Scheisse!*" I kneel in the half-dark to pick everything up, chucking the half-open diaries clumsily back in the box.

Roast chicken and potato salad in the garden.

Grey's scrawling copperplate catches my eye in the light spilling from the kitchen. *Beech leaves on the fire. I dream of being a Viking.*

Potato salad. He meant *kartoffelsalat*, the German sort served warm with mustard and vinegar, not mayonnaise (i.e., not totally disgusting). The entry is from Midsummer's Eve last year: the night of my first kiss with Jason. My first real kiss, ever.

It's a thump to the heart. But it's also an explanation: I spent the afternoon studying spacetime, and I was reading the diaries while I packed. That's why I remembered it so vividly. Ned's home, I hung out with Sof, Jason's back and smiling at me . . . This is why my mind's on

last summer. I didn't lie on a blanket in the grass or smell the bonfire. I'm imagining things.

Because otherwise I'd have to admit that there is such a thing as a wormhole, and that I've seen two today. But Thomas is arriving tomorrow, and that's about as much as I can deal with.

I reach forward and slam the diary shut.

Tuesday 6 July

[Minus three hundred and eight]

After I text Jason back—a breezy *You too!* :) that takes two hours to compose—me and Umlaut stay up all night, reading Grey's diaries and breaking our hearts. I couldn't quite bring myself to put them in the car. And a small part of me is hoping that the wormholes are real, and I'll be blasted back to when he was alive.

The entries are all semi-cryptic, but this one makes me laugh, because I remember the day he means:

Gottie on a fruit and vegetable boycott after learning birds and bees.

Something about a condom on a banana.

(Buy vitamin pills?)

Consider dungeon. She looks so much like Caro.

Caro—my mum. Grey was pretty accepting that his only daughter got pregnant at nineteen by a tiny blond German exchange student—but he was also clear history wasn't going to repeat itself. That day, I'd hurtled home from sex education at school, convinced Grey would say, "Make love in the sea, Gottie! Tangle among the waves! Let Neptune protect your vital eggs!"

But instead he thundered, "I don't know if I believe in all the things I'm doing, dude, or if I half-believe them and it's cosmic insurance. But you can get pregnant upside-down, the first time, in the sea, on the grass, under a full moon—most especially under a full moon; all that romance and you forget your own name, let alone the rubber in your wallet. So take the pill, for God's sake. Take all the pills. Use a condom, get a diaphragm."

It's dawn by the time I stop reading, the sun coming up as bright as a magnesium flame. No freak rainstorms have shut down the airports. Which means Thomas is arriving in T-minus eight hours.

Let the *Sturm und Drang* begin.

First, though, I have to make it through this end-of-year assembly. We've barely finished our year, and already they're hustling us out the door—every week there's a talk about college applications, personal statements, student loans, next year's exams . . .

"This Is Your Last-Chance Summer," Mr. Carlton, the college advisor, is stage-whispering. "Entrance Exams Start In September, People—Do Not Waste Your Summer Vacation."

In the row ahead of me, Jake rests his head on Nick's shoulder, unconcerned with the doom-mongering. The girl next to me is on her phone, tweeting about the *unfairness* of having summer homework. Across the room I can see Sof, head-to-toe in pink and frantically writing

a million notes as Mr. Carlton starts whispering about the Process For Art School. I should text her and say not to bother, Ned went through all that a year ago.

But I'm too busy freaking out.

And not just about what happened last night: the memory-wormhole-whatever. Losing a huge chunk of time. *Jason*. But also: Thomas being halfway over the Atlantic by now. Ned retuning the kitchen radio to static, which was how Grey used to listen to it. ("Cosmic noise, man, you can't beat it! It's the sound of the universe expanding.") And Papa, ballooning around the bookshop—he drifts in and out of the house, replenishing cereal supplies and springing surprise kittens and summer visitors, but he's not *there*.

All of that, and then there's Mr. Carlton striding around up there, telling me I need to decide what to do with the rest of my life, and for the next four years, and where to do it. Right Now!

You can practically hear the exclamation marks as he talks. That I'm expected to be excited about it. Everybody else is. Happy to escape our sleepy seaside villages, embroidered along the coast, where we've been our whole lives and nothing ever happens.

But I like sleepy. I *like* nothing-ever-happens. I buy the same chocolate bar from the same shop every day, next to our village pond with its minimalist duck population of three, and then I check the Holksea village newsletter with no news on it. It's comforting. I can wrap my whole life up in a blanket.

I don't want to "Think About The Future," as Mr. Carlton keeps proselytising. It's hard enough living in this present.

While he keeps finding new and terrifying ways to hiss about The Rest Of Our Lives, I tune out, and start making notes on my pad. I might not be able to stop the inexorable forward motion of applying for

college, Ned's *What Would Grey Do?* summer agenda, or Thomas's plane, but there is one thing I can control.

I can work out what really happened last night.



By the end of the assembly, I've got a notebook full of equations to justify my split-screen-meets-telescope hypothesis. As everyone scrapes their chairs back, Sof half-waves at me across the room to join her in the escape-gaggle at the doors. I shake my head, pointing to my physics teacher, and she gives me a closed-lip smile.

Ms. Adewunmi's lingering in her seat, frowning at a timetable, but I'm hoping she'll welcome such out-of-the-blue questions as—

"How does spacetime work?" I blurt.

She looks up, sternly. "I *knew* you weren't paying attention yesterday."

"No, I mean—I was. I did the quiz, in detention. In class, sorry . . ."

My apologies trail off, and she laughs: "Kidding! What is it you want to know, exactly?"

“I wanted to ask—vortexes. Wormholes. What do they actually look like?”

“Is this a curriculum question, or do I need to worry about Norfolk getting sucked into the fourth dimension?” Ms. Adewunmi asks.

“It’s hypothetical. I mean, theoretical! I’m interested in the math behind it,” I assure her. “I know you can’t create a wormhole without dark matter, or travel through one. But could you see through it? Like a long-distance TV?”

My teacher considers me, then darts a glance from left to right. There are still stragglers at the doors, and she watches them leave before leaning forward to whisper, urgently, “What’s the thousandth prime number?”

“Um?” I don’t understand, compute it anyway. “7,919.”

She jerks her head to the doors. “Follow me.”

Ms. Adewunmi doesn’t say anything the whole way along the corridors. Every time I try to ask a question, she gives a tiny head shake. I start to wonder if I’m in trouble. When we get to her office, she sits behind the desk, then pushes the other chair out with her foot, wordlessly asking me to sit. It’s completely badass.

I scramble into the chair. Is she going to give me detention again? Normally she’s all smiles, even when covering boring stuff like topology, but she’s staring at me seriously. Then she finally speaks.

“Welcome,” she says, fixing me with a stare, “to the Parallel Universe Club.”

I stare back, heart thumping.

“God! *Kidding*, again!” She cackles loudly. “You kids are so gullible.” She wipes her eyes, still laughing. Hilarious.

“Gottie, every year one of my students acts like wormholes are real. And c’mon, this is the first peep I’ve heard from you all year. You’ve got

to let me have my fun. All right, then. Theoretically—who knows what you'd see? Any vortex would be so curved, the event horizon would prevent you seeing round the corner. And if we dive into pure mathematical theory and imagine you *could* see through a wormhole, the gravity inside would be so strong, it would distort the lightwaves.”

In English: you'd see nothing, or funhouse mirrors. But Jason's kiss last night was a live-action, Smell-O-Vision, Technicolor, 3D, IMAX replay. With popcorn.

“OK, but,” I push, “mathematically. In theory. Say with the Gödel metric, the past still exists, because spacetime is curved. If you *could* see the past, like through a—” I mumble the next bit, aware of my supreme ridiculousness, “TV-wormhole-telescope, and it wasn't distorted. Would watching the past make time work, um, differently? From the viewpoint. Affect it, somehow?”

“You mean, the way a clock on a speeding train runs slower than one in the station?”

“Yes!” I beam. The clock thing is both true and *amazing*. “I was thinking . . . if you watched twenty minutes' worth of the past through the wormhole, you'd lose a couple of hours of real time.”

“Could do,” Ms. A contemplates me for a moment. Then she reaches for a pen and starts to write. “If you're interested in pursuing quantum mechanical theory at college, you'll want to read these. You should also—” she points her pen at my notebook, which is open to a doodle of Jason's name “—concentrate on your applications.”

I nod, putting my hand out for the list. She doesn't give it to me.

“Have you thought about a branch—pure mathematics or theoretical physics?” she asks, holding the paper just beyond my reach. “We don't want to lose you to the biologists. Ha ha!”

“I'm not sure yet . . .” The thought of committing to a subject for

life gives me the dry heaves. I can barely commit to an emotion for five minutes.

“Don’t take too long to decide—I’ll need time for your recommendation. In fact . . .” She waves the paper. “I’ll let you have this if you write it up for me. Your take on wormholes.”

“Homework?” I grimace, though I suppose a summer in the library is one way to avoid Thomas.

“Think of it as your personal statement. I want the math behind it too. You give me a kickass essay on this telescope-time theory, I’ll write you the kind of recommendation that will take you a million light years from Holksea—scholarships, grants, the works.”

She dangles the paper at me. I don’t want to be a million light years from here. I don’t know where I want to be. But I do want to know what’s going on. So I take it.

Unsurprisingly, hardly any of Ms. A’s list is in the school library. I check after my last lesson, but among nine thousand poetry anthologies there’s not so much as a battered *Brief History of Time*. The couple of books that should be there are checked out—I reserve them at the desk, then head to the bike sheds.

I know where I can find what I need. The Book Barn. Grey came at the universe from a different angle to me, but he had a whole floor stacked full of science—from fiction to physics. The only problem is, I haven’t been there all year. Whenever Papa’s floated down to earth and asked, I’ve made excuses—homework. Biking. Swimming, even when the sea froze in November, or lying on my bed and staring at the ceiling for hours.

If you turn people away enough times, eventually they stop trying to find you.

When I get to the gate, I stop and dig through my book bag for my helmet. See Grey's diary instead. I brought it with me this morning, a sort of talisman. Now I flip it open to find out—what was I doing, this day last year?

G should move back into Ned's room when he leaves for St. Martins. Rejoin the world.

Underneath there's a little doodle of a cat, and I know exactly what day this is. Exams were long over, but I was tucked inside the bookshop attic, reading. Until Grey sat down next to me, plucking the book from my hand.

"Schrödinger, huh?"

I watched him scan the text a little, the famous cat theory. It was pre-Umlaut.

"Let me get this straight," said Grey. "You put a cat, uranium, a Geiger counter, a hammer and a jar full of poison in a box. What the hell kind of Christmas present is that?"

I laughed, and explained the uranium has a 50 percent probability of decaying. If it does, the Geiger counter triggers the hammer to break the jar full of poison, and the cat dies. But if the uranium doesn't decay, the cat lives. Before you open the box and find out for certain, both things are therefore simultaneously true. The cat is both dead and alive.

"You want to know a fun fact about Schrödinger?" Grey asked, handing me the book back and standing up.

"All right."

“He was a champion shagger,” Grey boomed. “Screwed his way round Austria!”

I could hear his laughter as he made his way down the stairs, even as I went back to trying to work out how two opposites could both be true. Jason was my Schrödinger. Inside the box was us: a secret, something special; no one else could take it over or spoil it. But we’d been together a few weeks, and now there was another thought inside the box: I wanted him to claim me out loud.

Before I left the bookshop, I went into the biographies section and looked it up—about Schrödinger and the shagging. Grey was right.

I don’t know how Papa manages to work there every day.

But once I pedal away from town, on the coast road back to Holksea, I begin to relax. The air is honey on my skin, and after a while, the world is nothing but sun and sky and sea. Occasional pubs and churchyards flutter in my peripheral vision. I speed up till they blur, salt air filling my lungs. I breathe it deep, and then I’m a kid again and for a moment nothing matters—not Thomas, not Grey, not Jason.

After a few minutes, a cluster of old buildings approaches in the distance—the outskirts of Holksea. The bookshop is on the sea side of the village, and you can see the sign from space: the Book Barn. It’s huge, flashing neon pink capitals, dim in the sunlight but still as bright as Grey himself, and the letters imprint themselves on the back of my retinas.

I’m fifty feet away and still going fast when they disappear. Just—*blink*—and gone.

No.

My heart speeds up, my feet slow down, but not much. I’m compelled to keep going. Thirty feet now. Where the letters should be, there’s nothing but space. And this time I don’t mean emptiness, nothing, a negative

integer, the square root of minus fucking seventeen. I mean, literally: outer space. There's a hole in the sky where the sky should be.

Twenty feet now. I'm half a mile from the sea, 52.96 degrees north, and a billion light years away from Earth. This isn't a telescope. It's the *ficken* Hubble.

And at the edges of the hole, where the sky turns back to blue, the same untuned-television fuzz that I've seen before, twice now. What did Ms. Adewunmi say, about vortexes? That the image would be distorted? This is crystal.

I'm sick with terror, but I can't make my feet stop pedaling. Because, oh shit, oh shit, oh shit. Grey's bedroom. Grey's diaries. Grey's bookshop. Whatever this is—and there's definitely a *this*, yesterday I saw last summer, and today there's a hole filled with the Milky Way!—it has to do with Grey. And Grey's dead. Which means it has to do with me . . .

At ten feet away, instinct jerks my handlebars, aiming for the footpath to the sea. I lean my body into the turn, one I've taken a million times before, and faster. But this time, for whatever reason, I'm in trouble.

I hit the turn too hard, it's more of a swerve, and adrenaline floods me. This is going to be bad. There's a shot of fear as I try to correct my balance, jerking to the right. But then my front tire veers from a rock to a pothole, and I'm down—and it hurts—but I don't stop moving, even when I hit the path. My elbow meets the ground first, and a throb shoots up my arm. There's fire in my thigh as I slide along for a few feet, leaving my skin behind. I crumple to a halt when I land in the hedge—but the bike keeps sliding, my foot trapped in the pedal. It drags my leg round, twisting my ankle, before discarding me and spinning away with a crash. Leaving me alone.