
AN INTERSTELLAR SEQUEL
BORROWED
GRAVITY
WHITNEY SCOTT

BORROWED GRAVITY

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An Interstellar Sequel

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Story by
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Prologue

A WHITE BED ABOVE the rings. His daughter's hand, thin as paper on the sheet, the skin so fine he could see the blue beneath it. He covered it with his own and was afraid to press.

Brand's out there, setting up camp. Alone, she said. *My kids are here for me now. Go to her.*

A farmhouse, rebuilt board by board inside a station that turned above Saturn. The porch. The rocking chair. His old truck parked behind a velvet rope, its tires clean of any dust that had ever been real. Cooper stood in the yard of his own life and let the visitors walk around him. Behind him, a child asked her mother if the astronaut was real.

Upstairs, Murph's room. A gap on the bookshelf where a book had fallen once and never been put back.

Doctors, for weeks. A body thirty-six years old on a chart that said one hundred and twenty-four.

A hangar after hours. TARS in pieces on a workbench, and then not in pieces, a single light coming up across his display.

"Honesty," Cooper said. "Ninety-five percent."

"Confirmed."

"Humor. Seventy-five percent."

"Confirmed. Self-destruct sequence in T minus ten. Nine—"

"Let's make that sixty."

"Sixty percent, confirmed." A pause, precisely timed. "Knock knock."

"You want fifty-five?"

A docking bay at shift change. A guard looking the other way at the wrong moment. A Ranger with its airlock open, and TARS's arm already on the release.

Then the station falling away behind the glass, its lights dropping off one row at a time, and nothing ahead but Saturn and the wormhole.

The recorder clicked on. He had clipped it to his collar the way a man pins on a flower he doesn't want to wear.

"Murph," he said.

He let it run on silence for a moment.

"I told you I'd go to her. I broke one promise to you. I'm not breaking another."

Behind them the station turned once more in the window, small and bright against the rings. Then it was gone.

PART ONE

Borrowed

Chapter One

The Corn

⁂

The corn was green.

That was the first thing wrong, though it took Cooper a long time to know it. He stood at the edge of the field with his hands deep in the pockets of his old canvas jacket and watched it move: rows and rows running out to the line of the sky, leaning one way and then the other as the wind came through. The sound of it was the sound he had fallen asleep to for most of his life. Dry leaves talking. Wind.

Not dust. Wind.

He let himself believe it.

Behind him the screen door slapped against its frame, and he turned. Donald stood on the porch with a cup of coffee held against his chest, squinting the way he always squinted at Cooper, as if his son-in-law were a piece of weather he'd been warned about.

"You planning on staring at it all day?"

"Maybe."

"Could've used some of that enthusiasm back when there was work to do."

Cooper smiled. It came easily, which should have been another clue.

Then the engine. The old truck came down the dirt road too fast, bouncing in the ruts, and pulled up crooked beside the house with one wheel in the ditch. He knew that engine. He knew the way the driver's door stuck and had to be shouldered open, and he knew who would come out of it before she did.

"Dad!"

Murph ran at him across the yard, and Cooper's chest went tight, and it was not joy.

She was too tall. He saw it in the second before she reached him, and then her arms were around his neck and her face was in his jacket and he was holding her anyway, because what else do you do. Fourteen. Fifteen, maybe. Long in the arms, all elbows, the baby gone out of her face. She should have been ten. He had left her at ten. He had a clear and terrible memory of exactly what ten looked like.

She pulled back and looked at him, and her eyes went over him the way they used to go over an engine she was taking apart.

"You look old," she said.

"So do you."

"No." She didn't smile. "You look really old."

He looked down at his hand on her shoulder. The skin was loose and spotted. The veins stood up on the back of it. He turned it over, and the palm was an old man's palm, and he turned toward the truck as if the truck could explain it, and in the side mirror an old man turned to look back at him.

It was him. It had his eyes.

"Murph—"

The screen door slammed. He looked up. The porch was empty, the coffee cup gone with the man.

"Donald?"

Nothing. Just the door, swinging a little on its spring, and then not.

The wind came up. The corn bent flat.

"Dad?"

He followed her eyes. Along the whole length of the horizon, from the barn to the far tree line, a brown wall was standing up out of the ground. It didn't look like weather. It looked like the edge of the world folding over. And above it, in the clean daylight sky where nothing should have been, a thin pale ring tilted across the blue, too big and too sharp.

"Get inside."

She didn't move. She was looking at the ring.

"Murph. Inside. Now."

The storm hit them. Dust in his mouth, his eyes, the light going brown and then gray. He found her arm and closed his hand on it and pulled, and they ran, bent double, toward where the house should have been.

For half a second, in the churning dark, a face hung in front of him. A man's face, lit from below by a thin green line, the light catching in a pair of glasses. Then it was gone, and Cooper didn't know whether he had seen it or remembered it, or whether there was a difference.

Under the wind, something else. Low. Mechanical. A sound he felt in his teeth before he heard it, building.

The dust tore open, and a ship came through it.

It came rolling, end over end, trailing fire. Long panels stood out around its core like the petals of a broken flower, flashing as it turned, pieces coming away from it, and it was falling, and it was falling toward them.

"Run!"

He reached for her.

His hand was empty.

"Murph?"

The ship filled the sky.

"*Murph!*"

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Saturn did not make a sound.

It hung across half the sky, banded gold and cream, so large that the eye kept trying to turn it into something nearer: a wall, a ceiling, the curve of a desert seen from a plane. Along the edge of its rings the Ranger crawled, a fleck of light against a plain of ice that ran on for thousands of miles and was not, up close, a plain at all, but a river of stones, each one turning in its own slow sleep. Nothing out here hurried. Nothing out here had ever needed to.

Inside the Ranger, Cooper woke as if he had been thrown.

He came up hard against the harness, gasping, his hands already reaching. The cockpit was dark except for the instruments. A low vibration ran up through the seat. In the window, Saturn, filling it.

"Cooper."

The voice came from behind him. Level. Unhurried.

"TARS."

"Yes."

He breathed. Four counts in, four out, the old centrifuge drill. Check the instruments. Check the horizon. There was no horizon. His heart was still running through the corn.

"Was I talking?"

TARS stood behind the pilot's seat, where he had been standing for the last nine hours, a slab of dark metal with the patience of furniture.

"Again. In your sleep."

"What'd I say?"

"Murph."

Cooper's hand stopped above the console.

"That's it?"

"You said her name three times."

He had known it would be that. He asked anyway, because some part of him hoped it had been something else. Something about the corn.

"You were listening."

"I'm always listening. It's most of what I do."

"Don't."

"You're a passenger on a ship I'm flying. Listening is the job."

"You're equipment," Cooper said, "on a ship I'm commanding."

TARS didn't move.

"Noted."

Cooper knew it was unfair. He had his reasons, and he wasn't going to go through them now, not with nine hours of flying left and a headache coming on.

Cooper turned back to the instruments. Without deciding to, his left hand went into his jacket pocket and came out with the watch. It was an old thing, cheap even when it was new, the glass cracked straight across from a fall he didn't remember. He ran his thumb over the face once and put it back.

He felt TARS's sensors on him while he did it. TARS said nothing, which was worse.

"What've you got humor set at?"

"Sixty percent."

"Make it zero."

"That would make me less useful."

"That's the idea."

A pause. Long enough to be a comment.

"Zero."

It was quieter after that. Cooper had asked for quiet. He found he didn't like it much.

A light blinked amber on the communications panel.

"Cooper Station again."

"Don't answer."

"They would like their Ranger back."

"Funny."

"Accurate. My humor setting is zero." The smallest delay. "Violation logged."

Cooper looked at him. TARS stayed angled toward the instruments.

"They'll get it back."

"The phrase they're currently using is 'stolen spacecraft.'"

"Borrowed."

He didn't know why the word mattered so much to him. Only that *stolen* meant he had taken something that wasn't his and wasn't going to give it back, and he was not that man. He was going to give everything back. He just had to finish first.

He cut the transmission. The amber light went out, and the cockpit was dark and quiet again, and Saturn turned beneath them as if none of it mattered, which, from where Saturn was, it didn't.

Beyond the rings, small and strange, hung the wormhole.

It was easy to miss if you didn't know where to look. It didn't shine. It bent. A sphere the size of a coin held at arm's length, and inside it the stars were wrong: another sky, folded into a ball and set down in this one, every point of light smeared around its edge. Cooper had been through it once with his eyes open. What he remembered most was the instruments. Every reading going wrong at the same time, and his hands staying on the stick anyway because there was nothing else to do with them.

He reached for the controls and entered a correction. The Ranger answered. The wormhole slid across the window, and kept sliding, and was gone off the edge of the glass.

"The wormhole is twelve degrees starboard."

"Yep."

"You're turning away from it. I thought we were going to Brand."

"We are."

"We are currently going somewhere else."

"Also true."

A new marker bloomed on the navigation display. TARS read it without being asked.

"Lazarus. Long-duration gravitational research vessel. One crew member: Dr. Kane. Not scheduled to leave Saturn."

"Plans change."

Lazarus. Somebody at NASA had a sense of history, or none at all. The Lazarus missions had been the twelve who went through the wormhole first, Miller and Mann and Edmunds among them, one each to a world, to wait and see if anyone came. Most of them hadn't lived to find out.

"You intend to ask him for his ship."

"That's one way of putting it."

"The Ranger can reach the wormhole. It cannot support an extended search on the other side." The briefest pause. "Lazarus can."

"Now you're catching up."

"I was caught up several minutes ago."

Cooper almost said something. He let it go.

TARS waited. He was good at it.

"I was hoping you would explain why you already knew where to find it."

Cooper looked out at the rings and didn't answer.

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They flew low over the ice for a long time.

From the cockpit the ring plane looked solid enough to land on, a white field scored with faint gray lanes, running to a horizon that curved down and away. But when the Ranger dropped close it came apart into what it really was: boulders of ice the size of houses, of barns, of churches, drifting past one another in perfect silence, each one lit gold on a single face by a sun shrunk to a hard white point too bright to look at. The Ranger's shadow slid across them, a speck crossing a field nobody had ever walked.

Cooper ate from a foil pouch and tried not to look at any of it for too long.

"Your heart rate increases when you dream about Murph."

"Stop monitoring me."

"You're the only part of this ship that can fail."

"Then monitor the ship."

"I am."

He squeezed the pouch. Nothing came out. He squeezed harder, and something gray and reluctant arrived at the opening and stayed there.

"This food's terrible."

"I don't eat."

"Exactly. You don't get an opinion."

"I have several."

"Keep them."

TARS made a course correction so small that Cooper felt it only as a change in the hum under his boots.

"You could sleep."

"You could stop talking."

"Both statistically unlikely."

Cooper settled back anyway and closed his eyes. He didn't expect to sleep. He expected the field, and the ship coming out of the dust, and his own empty hand.

After a moment the cabin lights dimmed, the way a parent turns down the hall light. Nobody had asked them to.

Cooper opened one eye. He looked at TARS for a while. Then he closed it again and said nothing at all.

⁂

Lazarus was bigger than he remembered.

Or not remembered. That was the part he couldn't have explained to TARS, or to anyone. Bigger than he had *seen*. Where he had seen it, it was falling. Here it simply hung against the rings, enormous and patient: a broad industrial hull, long solar petals spread around a central core, a habitation wheel turning slowly on its long spokes. One window on the habitation wheel was lit. One. Against the face of the planet behind it, the whole ship was a splinter, a thing you could lose under a fingernail.

Cooper opened a channel.

"Lazarus, Ranger Seven, requesting docking clearance."

Static. He waited it out, the way you wait out a tower that's busy, or pretending to be.

"Lazarus. You awake over there?"

"You're not cleared."

A man's voice, thin and exact, every consonant in its place. An old voice. Cooper had heard that tone on a hundred radios: the controller who had already decided and was only waiting for you to catch up.

"We've got kind of a situation over here."

"I know exactly what situation you have. You've been talking to Cooper Station." A short dry breath that might have been a laugh. "So have I. They said you stole a Ranger."

"Borrowed."

"They specifically warned me you'd say that." A pause, and when the voice came back it had moved half a step closer to curious. "How many aboard?"

"One. Plus the equipment."

"Does the equipment have a name?"

At the edge of his vision Cooper saw TARS's frame pivot a few degrees toward the speaker. He didn't look over. He found he didn't want to see whatever TARS's display wasn't showing.

"TARS," Cooper said.

"Then there are two of you, Mr. Cooper."

Cooper let that land where it landed. Out the window the ship hung there, patient, the one lit window on its wheel like an eye that hadn't decided whether to close.

"Lazarus, we're coming aboard. We don't need much."

"You need my ship."

"It's not your ship."

"It is today."

The line went quiet long enough that Cooper checked the signal. When the voice came back it was lower, and somehow that was worse.

"You're Joseph Cooper. The station sent me your file." He read the words off flat, one at a time, as if he were reading charges. "Pilot. Missing. Stolen Ranger." A pause. "None of that means I'm giving you my ship."

The panel lit red. DOCKING ACCESS DENIED. Below it, a second line: REMOTE GUIDANCE DISABLED.

Across the gap, the one lit window on Lazarus's wheel went dark.

"Turn around, Cooper."

The channel closed.

Cooper sat for a moment with his hands in his lap. Then he laid his right hand on the maneuvering controls.

"He said no," TARS said.

"I heard him."

"I believe he intended for that to end the discussion."

"It did."

He fired the thrusters, and the Ranger leapt forward without a sound, toward the dark ship he had already watched fall.

Chapter Two

Splinter

⁂

Up close, Lazarus stopped being a splinter and became a wall.

It filled the windshield edge to edge, a cliff of gray plating and folded pipe and maintenance ladders that went nowhere, scorched in places, patched in others, stenciled with warnings in a typeface that had gone out of fashion before Cooper was born. The solar petals stood out above them, longer than the Ranger three times over. Nothing moved on it. Nothing lit.

"TARS. Find me a way in."

A schematic bloomed on the display, the ship laid open in thin blue lines. TARS tried the docking port. ACCESS DENIED. He tried the cargo lock, the service door, a maintenance port on the far side of the habitation wheel that probably hadn't been opened in a decade. ACCESS DENIED. ACCESS DENIED.

"He's locked us out of everything remote."

The screen flickered, and a live feed cut in over the schematic. An old man in a cramped room full of displays, thin, white-haired, glasses pushed up on his forehead. He looked directly into the camera with the weary contempt of a man who has been interrupted at

dinner. Then he raised his middle finger, held it there long enough to be sure it had been received, and the feed went dead.

"He appears to have clarified his position."

Cooper studied the schematic. "Can you open the clamps manually?"

A diagram answered for him: a small red box on the hull, thirty meters from the docking port, across open plating. EXTERNAL EMERGENCY RELEASE.

TARS swung toward the red box. Then back toward Cooper. Cooper looked back, and TARS understood the look exactly.

"No."

"Vacuum won't hurt you."

"Your argument is becoming increasingly obvious."

⁂

There was no pod. There wasn't time to rig one, and TARS pointed out that a pod would only make him a worse projectile.

He folded himself into the Ranger's airlock one segment at a time, with an air of formal protest. Cooper sealed the inner door behind him and didn't look through the little window.

"Why am I always the one getting ejected into space?"

"Because you'll survive it."

A pause on the line.

"That's the first honest reason you've given."

The outer door slid open on black. TARS braced his frame against the sill, judged the gap the way he judged everything, and pushed.

He went out in a long clean line toward Lazarus's flank, turning very slightly, and for two seconds Cooper thought he'd nailed it. Then he saw the drift. TARS was going to pass the red box by three

meters. Then five. Sliding along the hull just out of reach, with nothing out there to grab and nothing to push against.

"TARS."

"I see it." Mild as weather. "I believe I've missed."

Cooper's hands moved before his head did. Nothing out there could push TARS back on course except the Ranger's own exhaust. A quarter roll, to swing the starboard maneuvering thruster around until it pointed at him. Then the smallest puff he could give it.

"Gently," TARS said.

"I know."

The plume bloomed silent and white across the gap. It caught TARS along one side and leaned on him, barely, a hand on a shoulder, and his line bent back toward the hull. Beyond him the edge of the same plume washed across a cluster of small nozzles on Lazarus's flank, the big ship's own steering jets. Cooper saw it happen. He noted it, and didn't think about it, because TARS was reaching.

TARS hit the plating a meter short of the box, hooked a handhold with the end of one arm, and swung in flat against the hull.

"I'm intact," he said. "Thank you for asking."

"Keep moving."

"I would like to revise your definition of gently."

"Don't log that."

"Logged."

On the feed, TARS went the last few meters swinging from handhold to handhold, pressed flat, a dark slab moving over the gray against the endless gold of Saturn. There was no sound to any of it. A communications dish on the hull above him began to turn, sweeping, and TARS flattened himself into the hull until he was nothing but a seam in it. The dish passed over. He unfolded and went on.

He reached the red box, braced, and pulled.

Along Lazarus's flank the docking clamps swung open.

"Got it." A short silence on the line. "Next time, you go."

Cooper was already reading the approach. He said it the way you agree to something you don't intend to remember.

"Deal."

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The Ranger slid in beneath the petals, and the clamps closed on it without a sound. Below them both, Saturn turned, enormous and indifferent, its rings laid across the black.

The docking port opened six inches and stopped.

Behind it, a second bulkhead dropped into place with a thud Cooper felt through his boots.

The old man's voice came from somewhere above them, tinny and unimpressed. "I have more doors than you have air."

Cooper found the emergency breaker beside the port and pulled it. TARS wedged two segments into the gap and forced it, then the bulkhead behind it, metal complaining the whole way, and they stepped aboard.

The corridor beyond was long and narrow and smelled of old air. Every door along it slammed shut at once, a hard run of reports down the length of the corridor, and the lights died.

Dark. Then, halfway down, a single emergency strip flickered on over a storage compartment, a small amber invitation.

Cooper went toward it. He would think about that later, how easily he had gone. He stepped into the compartment to look, and the door sealed behind him.

The hiss started low. It climbed to a scream, the air of the little room tearing out through a vent he couldn't see, and the pressure went out of his ears and his chest and his eyes all at once. He hit the door with both fists.

"TARS!"

BANG. The door bowed inward.

BANG. It tore open, and the end of a metal arm hooked his collar and dragged him out into the corridor and the air, and he was folded in midair, gasping, the world red around the edges, his eyes burning.

"You were in there eleven seconds," TARS said. "A few more and you'd have been unconscious."

Cooper's ears were still ringing and he could taste blood. There was a long square dent in the storage-room door the exact width of one of TARS's segments. He didn't thank him. Neither of them mentioned it again. They climbed out of the spine and down the long ladder of a spoke toward the wheel, weight coming back into Cooper's legs rung by rung.

⁂

They heard him before they saw him.

The bridge door was shut, and behind it a man was speaking. Not to them. Not to anyone Cooper could imagine. The voice was low and steady, the voice of someone reading something he no longer needed to read.

"Reyes."

A pause.

"Okafor. Lindqvist. Melanson. Dunn."

A longer pause. Long enough that Cooper found himself waiting too, for someone to answer.

Nobody did.

"All present."

Cooper looked at TARS. TARS turned toward the door.

It slid open, and Saturn filled the windows, so close and bright that Cooper had to squint. Six chairs ringed the central console. Five were shrouded in dust sheets, gray shapes like furniture in a

house nobody lived in anymore. A faded mug sat beside one of them, its handle turned out, as if someone had only just set it down.

The old man sat in the sixth.

He was thinner than he'd looked on the feed, and older: white hair, a face drawn down to the bone, glasses, a cardigan gone shiny at the elbows. He had the look of a man who had been alone so long he'd forgotten other people could see him.

Cooper's eyes caught on him and stayed. There was something in the face. Not the face itself. The angle of it. The way the light from the console came up across it from below. He frowned. He couldn't place it.

"Take a picture," the old man said.

"Sorry."

"You broke my door."

"You tried to kill me."

"I was discouraging you." He said it without heat, a teacher correcting arithmetic.

"You depressurized the room."

"You remained surprisingly encouraged."

"He lasted eleven seconds," TARS offered from the doorway.

The old man looked at TARS then, properly, for the first time: a long, interested look, the way a man looks at an instrument he hasn't seen in years and is glad to find still working. Then back at Cooper, and the interest went out of his face.

"Longer than most," he said.

Cooper waited for the rest of it.

"Most people panic."

Cooper looked at the five shrouded chairs and the mug with its handle turned out. Somebody had set it down and never come back for it.

TARS moved toward the controls.

"Don't."

TARS stopped. The old man hadn't raised his voice. He hadn't needed to.

"I'm not going through that wormhole," he said.

"I didn't ask you to."

"You want my ship."

"Yes."

"No."

They looked at each other across the dead chairs, two stubborn men and a machine, and for a moment nothing on the bridge moved at all.

Then, on the console between them, a pen began to roll.

Chapter Three

Tumble

⁂

The pen rolled to the edge of the console, hesitated, and dropped.

It didn't fall the way a pen should fall. It drifted sideways as it went, as if the floor had been tilted under it, and hit the deck a foot from where it ought to have landed.

Outside the windows, Saturn moved.

Not much. A slow slide, the great gold curve of it easing to the left. Cooper felt it in his stomach before he understood it with his eyes.

The old man was on his feet. "What did you do?"

"Me?"

"Your thruster washed across my attitude jets." He was already at a side panel, reading it. "It cooked the valve seat. One of them is stuck open. It's spinning us."

Cooper thought of the plume blooming white across the gap, leaning TARS back onto the hull, and the edge of it washing over a cluster of nozzles he had noticed and not thought about.

"You put it in the way."

"It was *attached to the ship!*"

An alarm went off somewhere aft, a flat electronic bleat. A correction thruster fired on its own, a hard thump through the hull, and the ship rolled harder. The autopilot was correcting into the spin instead of against it. Cooper had seen student pilots do the same thing and kill themselves doing it.

"Stop," TARS said, to no one in particular.

Too late. Saturn swept sideways across the windows and kept going.

⁂

From outside, there was no sound at all.

Lazarus turned above the cloud tops end over end, slow and enormous. Its petals flashed as they swung into the sunlight and went dark as they swung out of it, flash and dark, flash and dark, a lighthouse with no one to warn. From a wound in its flank a thin white plume of gas unspooled into the black and curled behind it in a long, lazy spiral. Where Lazarus grazed Saturn's upper atmosphere, a faint red glow gathered along its leading edges, leaving a wavering streak of light behind it. Below, Saturn's weather went on without noticing, storms the size of continents drifting in their bands.

The ship was falling. Not quickly. It had all the time in the world to fall.

⁂

"One jet stuck open and venting propellant," TARS said. "The heat split the coolant manifold behind it, too. Every second the jet fires, it pushes us harder."

Cooper had a handhold on the console and his feet braced against the base of a chair. "Can we get it back?"

"Yes."

The old man had found a grip on the bulkhead. "Probability?"

"Fourteen percent," TARS said.

"Why would you say *yes*?"

"You asked if we could."

The old man stared at him. Cooper, despite everything, felt his chest loosen.

"I've done worse," he said.

"He has," TARS agreed. "I was there."

There had been another ship once, another spin. A ring of modules wheeling above a frozen world, and him with his hands on the stick, and a voice in his ear saying it was not possible. He put it away. There wasn't room for it.

The navigation display showed the rest. A curve sloping down from the low end of their research orbit. Lazarus swung out to the rings and back down into Saturn's upper sky every few hours, and the stuck jet had pushed the bottom of that swing into the thicker air below, and at the end of it, a band of red: the place where the air got thick enough to burn. The tumble was flinging the ship's nose through every direction but the one that mattered. Every time the main engines came around to the right angle, they were already leaving it.

"The Ranger," Cooper said. "Its thrusters—"

"At the Endurance we were the biggest thing there," TARS said. "Here we're clamped beside the spine, almost on this ship's balance point, and it's ten times our size. We could push all day and barely turn it."

Cooper's eyes went around the bridge, looking for anything. They stopped on a panel to starboard, a heavy console set apart from the others with its own dark screen and a palm plate at its center. A stenciled label above it: GRAVITATIONAL FIELD ARRAY.

"That."

"No."

"What does it do?"

"Nothing that helps us," the old man said.

"Experimental gravitational-gradient array," TARS said.

"Can it move mass?"

"Test masses," the old man said.

"Mass is mass."

"No. That is the kind of sentence stupid people say immediately before breaking expensive equipment."

"Technically," TARS said, "mass is mass."

"Thank you, TARS," the old man said. "Stay out of this."

It was said without thinking, and Cooper glanced at him. A man who would let a stranger suffocate in a storage closet, thanking a machine. The old man didn't notice the look. He had already turned back to the array, and as the ship lurched, his hand went out to a flickering status panel beside it and rested there, steadying it. The flicker stopped.

Cooper filed that away and looked at the exterior feed.

The habitation wheel was turning on its long spokes, slow and heavy as always, and along its spokes, in tracks, rode the ballast pods: great dull weights, a third of the ship's mass between them, that kept it balanced. He watched them go round. He thought about a figure skater on an old television in a farmhouse kitchen, arms out, arms in, and Murph, eight years old, asking why she went faster.

"Lock the wheel, Kane. Dump its spin into the counter-rotor."

It was the first time anyone had used his name. The old man looked at him sharply, and then away.

"No."

"I need everything that can move."

"Moment of inertia," TARS said.

"Move mass toward the center, we spin faster," Cooper said. "Move it out, we slow down."

"You cannot stop the rotation," Kane said. "Angular momentum is conserved."

"I don't need to stop it. I need to point the engines the right way once."

"That is an appalling idea."

"Can it work?"

"Possibly," TARS said.

"Probability?" the old man said.

"Would you like me to lie?"

"Yes."

"Very high."

"Let's do it," Cooper said.

His hands were steady. They always were. It was the rest of him that wandered. Right now the rest of him was back in the corn, watching this ship come out of a dust storm on fire. He had seen it fall. He hadn't seen it land.

⁂

Kane shut off the stuck jet's feed first, and isolated the split coolant line behind it. Outside, the white plume thinned and stopped. Then he locked the wheel.

He did it with his mouth set in a line, and on the exterior feed the habitation wheel began to slow, its spin pouring into the counter-rotor in the core, the heavy emergency flywheel Lazarus carried for exactly this, with a long rising whine. The ship settled into one clean, end-over-end turn. Inside, the steady false weight of the habitation wheel went away, and a new one took its place, uneven and sliding, leaning them toward the outer wall with every turn. A

pen skidded across the console. Then a clipboard, tumbling. Then Kane's glasses slid off his nose and swung away from his face.

Cooper caught them out of the air and pushed them back onto him. Kane blinked at him and said nothing.

"Gravity appears to have changed its mind," TARS said.

"It'll be back."

"Neither of you understands gravity," Kane said.

"That's why you're here."

Cooper slapped his palm down on the array's plate. Nothing. The screen stayed dark. He tried again and Kane pushed his hand aside, not roughly, and laid his own palm flat in its place, and held it there a moment, as if waiting for something to recognize him.

The array woke. A low hum came up through the deck plates, deeper than hearing.

And everything loose on the bridge leaned.

The pen skidding across the console stopped, and slid the other way, toward the array. The dust in the air drifted, all of it at once, in the same direction, like iron filings turning toward a magnet. The clipboard tumbling past Cooper's shoulder bent its path in a slow, visible curve and fetched up against the array's housing, and stayed there, pressed to it.

Kane lifted his palm a fraction. It all let go.

"It bends gravity," he said. "A little. Across a few meters around each coil, and there are coils all through this ship, down the spine and out along the spokes. It makes a gradient: gravity that's stronger on one side of a room than the other. Enough to move test masses without touching them. It's capped well below anything that could hurt you, and the cap is there for a reason." He looked at Cooper over his glasses. "Not a ship."

"Not the ship," Cooper said. "The weights."

Kane followed his eyes to the feed, to the ballast pods sitting on their spokes. "Those tracks haven't run in years," he said. "The

drives are fused." Then he heard what he'd said, and Cooper watched him understand, and hate it.

He turned his palm on the plate.

THUNK. Out on the nearest spoke a pod slid along its track toward the rim as though something had taken hold of it, and the whole ship shuddered. Cooper watched the window. The tumble changed. It was hard to see at first. Saturn took half a second longer to cross the glass.

"It worked," Kane said, as if offended.

Saturn flashed past. Stars. Saturn. Stars. The rhythm of it was familiar in a way that had nothing to do with physics, and for a moment Cooper wasn't on the bridge at all: dust, corn bending, a girl with her hair blowing across her face, looking up.

He came back.

"All of them. Now."

THUNK. THUNK. THUNK. Three pods slammed out to the rim, one after another, and the tumble slowed to one long turn every thirty seconds. Saturn, then the stars, then Saturn again, each sweep taking whole seconds now, a slow wheel, a carousel winding down.

Cooper took the main-engine controls.

On the navigation display a narrow green band showed the angle the engines needed. Each turn, the nose spent about two seconds inside it. The ship's nose swung toward it, slow and heavy. Into it. Through it. Away.

"We aren't aligned," Kane said.

"Not yet."

"We're approaching the edge of the correction window," TARS said.

The nose swung on, away from the band, and the band itself began to thin, the red line at the bottom of the decay curve creeping closer. Cooper waited.

Every hour he had ever logged told him to burn. Every instructor he'd ever had would have pulled him out of the seat by now. He didn't know what he was waiting for. He waited anyway.

TARS stopped calculating. Cooper felt it more than saw it, the small change in the machine beside him, all that attention suddenly turned from the numbers to him.

"*Cooper!*" TARS said.

"Not yet."

Saturn came round again, its rings tilting across the window, and Cooper didn't look at it. He was looking at Kane.

On the display, the ship's nose came back around and settled onto the green band, and a single bright line began to climb. The window, opening. Its light came up across Kane's face from below, green, catching in the lenses of his glasses.

And there it was. The thing that had been on the tip of Cooper's tongue since the bridge door opened. A man's face lit from below by a thin green line, glasses, gone. He had seen this. Not dreamed it. Seen it. In the place where time was a room, among a thousand other fragments he hadn't understood, he had seen this exact face in this exact light.

It was the moment.

"Now."

He slammed the throttles forward and held them there for two seconds, exactly, and cut them.

The engines roared, and the ship surged along the line of the burn, and everything that wasn't strapped down went sideways at once. Kane lost his grip on the bulkhead and flew, and TARS's arm came out and caught him in midair.

On the display, the decay curve flattened. Then it lifted.

"Orbital decay arrested," TARS said. Out the window the stars were still turning, slow. The burn hadn't stopped the tumble. It had

only lifted them out of the air's reach, which was all it ever needed to do.

Kane struggled against TARS's arm. "Put me down."

TARS let go. Kane slid down the leaning deck and bumped gently into the far bulkhead.

"I meant gently."

⁂

Afterward, when Kane had spent most of an hour on the cold-gas jets, which were too weak to have touched the tumble at its worst, bleeding the last of it away, it was very quiet.

The engines had cut. The wheel would have to be spun back up, and it would take hours, if the bearing would stand it at all. Kane had listened to the groan it made locking and didn't think it would. So for now they floated, the three of them, in a bridge full of drifting pens and slowly settling dust. Out the window Saturn hung steady.

Kane had pulled himself back to the navigation console. He was replaying the burn.

"That shouldn't have worked."

"But it did."

"The physics explains how. It doesn't explain when." He tapped the display. "The nose sits in that band for two seconds a turn. Your burn was two seconds long. Light it a fraction late and it runs out the far side of the window and drives us down into the air. You lit it on the first hundredth of a second."

"Good timing."

"No," TARS said.

Cooper looked at him.

Kane had already bent back over the display, replaying the burn again, and didn't look up.

"You weren't watching the window," TARS said. "You were watching him."

The bridge was very quiet.

"We're alive," Cooper said.

"So?" Kane said, without lifting his head.

"So let's keep it that way."

He pushed off toward the door.

At the edge of it he caught the frame and looked back, not sure why. Kane was running the burn again. A third time. A fourth. On the fourth, Kane's hand trembled on the display, a small, quick shiver. He looked at it as if it belonged to someone else. Then he pressed the hand against his leg and held it there until the shaking stopped, and he did not look around to see whether anyone had noticed.

Cooper went out. Behind him, TARS stayed where he was, angled toward the old man, and said nothing.

⁂

Outside, Lazarus climbed.

It rose out of the high haze of Saturn's atmosphere with the Ranger still clinging to its spine, steady now, its petals spread, its long white scar of spilled gas thinning behind it into nothing. Behind it the planet's rim glowed. Against all that light, the ship was a splinter again, small and dark and very far from anywhere.

⁂

It took Cooper six hours to load the Ranger, and he knew the whole time it was a mistake.

The little ship was built for short hops: orbit to station, station to orbit. It could reach the wormhole. It could get him through. After

that it had air for a few weeks and fuel for less, and somewhere on the far side was a planet he had only seen in a dead man's survey data and a woman who might be alive on it. TARS had told him all of this, twice, in the flat voice he used when he had already run the numbers and didn't like them. Cooper had said he knew. He did know.

He was strapping down the last crate of ration packs in the cargo bay when he heard the airlock cycle behind him.

He turned.

Kane stood in the doorway. He had put on a coat, an old flight jacket a size too big for him now, and over one shoulder hung a battered canvas bag that looked as if it had been packed in a hurry and then repacked, carefully, by a man who didn't know what he would need. His glasses were smudged. There was grease on his hands.

"You'll die in that thing," Kane said.

"Probably."

Kane didn't come in. He stood in the doorway with the bag on his shoulder and looked past Cooper at the crates, the patched cargo net, the two suits hanging by the inner door. His eyes went over all of it, and his mouth tightened.

"I patched the manifold," he said. "Behind the jets you hosed with your thruster. It'll hold." A pause. "Probably."

"Thanks."

"Don't thank me."

He had a tablet under one arm. He took it out now, and hesitated, and then turned the screen toward Cooper.

A flat line. And on it, a single spike, sharp as a needle.

"When you fired," Kane said, "the array logged this. Not from us. From outside the ship. Somewhere out past the rings, for a quarter of a second, something bent the field." His thumb moved

on the edge of the tablet. It wasn't quite steady. "I haven't seen a reading like that in a very long time."

"What does it mean?"

"I don't know." He said it too quickly. Cooper had been lied to by better liars, and worse ones, and knew the difference between *I don't know* and *I don't want to say*.

Kane put the tablet away.

"That thing will get you through," he said, with a nod at the Ranger. "It can't search the far side. You'll run out of air before you find anything. Lazarus can carry you for a year." A pause. "I'm not lending you my ship."

Cooper waited.

"I'm flying it."

"Why?"

Kane didn't answer that right away. When he did, his voice was different. Lower.

"Nobody goes into a gradient field alone."

Cooper knew what a gradient was now. He didn't know what that sentence meant, not then. He could tell only that it wasn't a phrase. It was a law, and someone had paid for it.

"That's not a reason," he said.

"It's the only one you're getting." Kane shifted the bag on his shoulder. "My ship. My command."

"Your ship."

"This isn't friendship, Mr. Cooper."

"No."

Then, before Cooper could say anything else, Kane looked up, and his eyes behind the smudged glasses were sharp and frightened and very old. "And somewhere on the way, you're going to tell me how you knew."

Cooper looked at him: the bag packed twice, the hand he kept pressed against his leg.

Then he unbuckled the strap on the ration crate and let it go.

⁂

The wormhole didn't look like a hole. It never had.

It hung ahead of Lazarus like a crystal ball someone had set down in the dark: a perfect sphere, and inside it another sky. Different stars, folded and wrapped around its curve, smeared at the edges as if seen through the bottom of a glass. It grew for an hour without seeming to come any nearer, and then all at once it filled the forward windows and there was nothing else.

Lazarus slid into it with the Ranger clamped to its spine, and the stars began to move.

They didn't streak. They bent. Whole constellations swung across the glass and folded over on themselves, Saturn's light smeared into a ring and then a thread and then nothing, and the strange sky closed in around them.

There was only the light, bending.

Kane hung at the bridge window, one hand on the rail, watching it. He had been there since they entered. His face, in that bending light, was unreadable.

Cooper pulled himself in beside him.

"I used to watch it from this window," Kane said, without looking away. "Every night, for years. I never once thought I'd see the inside."

Chapter Four

Edmunds

⁂

Twelve years before Cooper stole a Ranger, the cairn was the first thing Brand saw every morning, because she had built it where she would.

It stood on a low rise a hundred meters from the habitat: a mound of forty-one stones, gray and flat, piled over a grave to the height of her chest. She had carried each of them up from the plain herself in the first weeks, when carrying stones was the only thing that made the days end. There was no name on it. Only the plate from his beacon, propped against the bottom stones: NASA. LAZARUS III. EDMUNDS-12. A mission and a number, which was all the agency had ever called him. She had thought about scratching his real name into the top stone and found that she couldn't, that the letters would make it true in a way she wasn't ready for, and by the time she was ready it had seemed too late to start.

She stood beside it now in the gray before dawn with her hands in the pockets of her coat. The air of this world was thin and cold and smelled faintly of iron, too thin to live in for long, which was why the habitat kept its own warm air behind an airlock. But she

could breathe it, which still surprised her some mornings. He had found that out for her. He had found out a great many things for her, and then he had died a long way from anyone, under a rockslide, and the beacon he left had gone quiet long before anyone came to answer it.

She didn't speak to the cairn. She had stopped doing that. She just stood with it until the small cold sun came up over the hills and laid her shadow down across the stones, and then she turned and walked back to the habitat, because there was work, and there was always work, and the work was what she had instead.

⁂

The Nest glowed green in the corner of the main room, a squat white cylinder with a small display encircled by a green status ring. NASA had named it the Nitrogen Embryo Storage Tank, because NASA could never leave a word alone. She had called it the Nest from the first week. A label above it, in her own blocky handwriting from the first day: PLAN B: COLONY STOCK.

She checked it first. She always checked it first.

"Viability?"

"Unchanged," CASE said. He stood beside the workbench where he spent his nights, a tall gray slab of a machine, scuffed and patched and dented in a hundred places she could have named.

"All of them?"

"All of them. You ask me that every morning."

"I know."

Fourteen months of work, and then forty-seven days of delays at the very end. Water. Power. Food. Shelter. Every system that a colony would need, built, tested, failed, rebuilt, by one woman and one machine on a world that had never had anyone to build anything. Yesterday the last condition for beginning Plan B had

finally been met. She had stood in front of the Nest last night with a cup of the bad tea she rationed and let herself think, for the first time, the word *begin*.

Today, the water reclaimer was vibrating.

It was a small thing. A hum in the floor, a shiver in the pipes along the wall. She put her palm on the housing. A fine, steady buzz, forty or fifty hertz if she had to guess, nothing like the pump's normal rhythm. She logged the time without thinking about it.

"The bearing isn't damaged."

"No."

"The pump?"

"Operating within tolerance."

"Then why is it vibrating?"

"I don't know."

She turned and looked at him. In all their years together, through every failure, CASE had always known, or known how to find out. He faced her with the flat patience of a machine and did not know.

She shut the reclaimer down. The pump wound to a stop. The pipes went quiet.

The vibration went on.

She stood very still and felt it through the soles of her boots. Not the machine. The floor. The ground under the floor.

"That's not us," she said.

"No."

⁂

A warning chimed from the exterior feed. One of the automated rovers, the one that traced its slow survey loop across the plain every morning, had left its route. On the screen it was drifting northeast, a few degrees at a time.

"Navigation failure?"

"Navigation reports nominal."

CASE took manual control. On the feed she could see him correct it, the wheels turning to bring it back. The wheels kept pulling northeast. CASE corrected again. The drift came back within seconds, the same amount, the same direction.

"Shut it down."

The rover stopped in the middle of the plain, its nose pointed at the hills.

Brand looked at it for a long moment. Then she pulled a chair up to the terminal.

"Bring up the other machines. Every navigation correction they've made for the last month."

Lines spread across a map of the region. The rovers, the drones, the drill rig, the solar-panel tracker that turned to follow the sun. Thousands of tiny corrections, on different days, by different machines, each one too small to notice on its own. Laid on top of each other, they weren't small anymore. They bent. All of them, in the same direction.

"They're not breaking," she said slowly.

"No."

"They're going somewhere."

The lines converged in the northeast, in the hills, on a single point.

"What's out there?"

"Historical survey data."

A file opened on the screen. She read the name on it before she read anything else.

EDMUNDS, W.

She sat with her hands in her lap and looked at the letters for a long time. She had read everything he left, in the first year. She had

read it the way you read letters from someone who has died, slowly, rationing it, and then she had closed it all and not opened it since.

"Open it," she said.

Navigation errors. Calibration failures. Expedition after expedition toward a geological fissure in the northeastern hills, logged in his clipped, careful shorthand. He had gone back again and again. The last route on the map ended at the place where he died.

"Show me his last survey."

Telemetry scrolled. Temperature, pressure, seismic. And there, in the minutes before the rockslide, a spike she didn't understand at first and then did. A sudden local change in gravity, so steep that any instrument reporting it should have been thrown away. She checked the units. She checked the sensor model and its tolerances. The number didn't get any smaller.

"Instrument failure?"

"Edmunds considered that possibility."

A note on the screen, in his hand. He had recalibrated the instrument. Then replaced it. Then gone back.

"He knew," she said.

"He knew there was an anomaly."

"And he went back."

"Yes."

She looked out at the stopped rover on the plain, nose still pointed toward the hills, and beyond it, the low rise and the cairn.

Of course he went back. That was who he had been. It was the thing she had loved and the thing that had killed him, and they had never been two different things.

⁂

By midmorning she was at the viewport with binoculars. Far to the northeast, a dark seam cut through the hills.

"Can we get in?"

"No."

"No?"

"I cannot recommend human entry into that area."

"I didn't ask for a recommendation."

"I anticipated the next question."

She was already reaching for the climbing gear on its hook.

"No," CASE said. "I'll go."

"You just said it's unstable."

"You are the only living human on this planet."

"That doesn't make you disposable."

"No. It makes you less disposable."

She held the rope in her hands and didn't put it down. "And if you're destroyed?"

"I am repairable."

CASE let a second go by.

"More repairable."

She hated that he was right. She hung the rope back on its hook.

⁂

She watched him go from the viewport: a tall gray shape walking out across the open plain toward the hills, his stride long and even, getting smaller and smaller until the habitat behind him was the only built thing in all that empty country, and then he was gone into the haze.

She sat down at the monitor and put on the headset, and his camera feed filled the screen.

The fissure was a canyon when he reached it, deep and narrow, its walls layered in bands of gray and rust. He went down into it. The light went blue, then dim.

"Anything?"

"Nothing unusual."

Three hundred meters. Four hundred. Five. The walls closed in on either side of him until she could see both of them at once in the frame.

"CASE."

"I know."

"You can turn around."

"I know."

At six hundred meters the image flickered. It wasn't static. It was a skip, as if a few frames had been cut out of a film.

"My internal clock no longer agrees with the habitat clock."

Her mouth went dry. "By how much?"

"It varies."

"Come back."

He stopped. On the screen the canyon floor ran on ahead of him into shadow.

"There is something ahead."

A tall shape stood farther down the fissure, upright, rectangular, very still. The camera adjusted. The shape sharpened.

It was CASE.

Another CASE, standing in the canyon fifty meters ahead of him, scuffed and dented in exactly the same places.

"A ghost," she whispered, and didn't know she had said it aloud.

The distant CASE took a step sideways. The rock under it gave way, and it fell, and was gone.

"CASE, get out of there."

"I am retreating."

He turned. The rock gave way under him, in exactly the same place, in exactly the same way, and he fell exactly as the other one had.

"*CASE!*"

"I am operational."

The camera jumped. Daylight. Darkness. Daylight. The same rock wall, at different times of day. Then the picture steadied, and it was not the canyon at all. It was the habitat. Her habitat, seen from outside, from a distance, small and white on the plain.

"I can see the camp," she said.

"So can I."

"You're four kilometers away."

"I know."

On the screen, the habitat's lights were on. Then off. Then the habitat was gone, just empty plain where it should have been. Then it was back.

"How many of you are there?"

"There are several."

The speakers crackled, and CASE's voice came through them, not through the headset, from the room around her.

"Brand, get away from the window."

She turned. "What?"

"I didn't say anything," CASE said in the headset.

The floor jumped under her. She was thrown sideways out of the chair and hit the deck hard, and the room shook, and the monitor dissolved into static.

"Brand, get away from the window."

The same words. The same voice. The same small hesitation before her name.

She lay on the floor and stared up at the speaker. She had already heard them. She had heard them before they were said.

"Brand." In the headset now, thin and far.

She pulled herself back to the console. "I'm here."

"I can't see you."

"Come back."

"I am trying."

"Where are you?"

A pause.

"I don't know."

A warning filled the screen in red letters she had never seen before.

CASE CORE STORAGE: CAPACITY EXCEEDED.

"CASE?"

The signal died.

"*CASE!*"

⁂

She drove the rover harder than it had ever been driven, across the plain toward the hills, with the dust boiling up behind her and the small sun in her eyes. On the dashboard CASE's emergency beacon blinked. It was ahead of her. Then it was behind her. Then ahead again.

"What the hell," she said to nobody.

The rover couldn't get down into the fissure, so she left it at the rim and went on foot, a rope over her shoulder, the wind pulling at her hair. The canyon swallowed her. Rock on both sides, the sky a ribbon overhead.

"*CASE!*"

Her voice came back off the walls. Above her, a slab of rock the size of a door broke loose from the canyon wall and fell. Then, halfway down, it changed direction. It turned in midair and shot sideways and smashed into the opposite wall in an explosion of gravel.

Brand backed against the rock and didn't breathe for a while.

When she went on, she went slowly.

In the middle of open ground, on a patch of flat canyon floor, drag marks began. They didn't start from anywhere. They simply

began, two long furrows in the dust, as if something heavy had been set down there from nowhere and pulled away. She followed them.

She found him wedged between two rocks at the edge of a drop, scorched, twisted, one arm bent the wrong way.

"CASE."

Nothing. Then, on his cracked display, a weak status light blinked. Once. Again.

"Okay." She put her hand on him. "Okay. You're still here."

She rigged the recovery line around his frame and braced and pulled, and he came free of the rocks all at once, and the ground under him shifted.

He slid. Over the edge, the whole dead weight of him, and the line snapped taut and yanked her off her feet and dragged her across the stone toward the drop. She grabbed for anything. Her hand found a lip of rock and closed on it, and she stopped, half over the edge, with the line biting into her shoulder and CASE hanging below her in the dark.

Her glove was on the line's emergency release.

One pull. That was all. One pull and the weight was gone, and she could climb up, and walk back to the rover, and drive home to the habitat and the embryos and the cairn, and live.

She was so tired. She had been tired for years. And it would have been so easy.

She took her hand away from the release.

"Not happening."

She hauled him up. Inch by inch, her boots scrabbling for purchase, her shoulder screaming, the rope burning through her gloves. She did not think about anything except the next inch. When his frame finally scraped over the lip of the drop she fell back against the canyon wall and he came down beside her, and they lay there together in the dust, the woman and the machine, under a ribbon of sky.

CASE was silent. His light blinked, faint.

"Don't do that again," she said.

Nothing.

"That's an order."

Chapter Five

Long Sleep

⁂

It took her until dark to get him home.

She winched him onto the rover's flatbed and drove back across the plain at a crawl, watching him in the mirror the whole way. His status light blinked. Sometimes it stopped, and her hands went tight on the wheel, and then it blinked again.

By the time she had him on the workbench the small sun had gone down behind the hills and the habitat was lit only by its own lamps. She opened his panels one by one. Inside, he was worse than he looked. Scorch marks across the boards. A seam of melted casing where a circuit had run too hot for too long. Cables fused to each other. She had rebuilt half of him herself since the landing, out of spares and salvage and stubbornness. She knew every board in him, and which of them she had soldered badly.

She worked. She did not think about anything except the next connection.

Some time after midnight she seated a board, closed a circuit, and his status light came on and stayed on.

"Come on, CASE."

A crackle in the speaker. Then, faint and careful, as if from a long way off:

"Brand."

She closed her eyes.

"Yeah."

"I appear," CASE said, "to be substantially less back than usual."

She laughed. It hurt her chest. "Don't be funny."

"I wasn't."

She wiped her face with the back of her wrist and leaned in. "Can you access your memory?"

"I cannot. My primary memory interface is damaged."

"But the core?"

"Present."

"Data?"

"Present."

She tried to read it anyway. She ran every tool she had at the protected storage, every diagnostic, every back door she had built into him since the landing, in case of exactly this. Every attempt failed. The core was there. It was full. She could not get in.

"My protected storage is at capacity," CASE said.

"From the fissure?"

"I don't know."

That was three times in one day. In all their years, he had said it maybe a dozen times. She sat back and looked at him, at the light under his cracked panel, and felt for the first time that whatever had been in that canyon had come home with him.

His status light flickered.

"Power loss," he said.

She was already pulling up the schematics. "Reroute from communications."

"That would terminate this conversation."

"Do it."

"Brand."

It was only her name. It was the way he said it that stopped her. The way a person says your name when they want you to look at them before they go.

She looked at him.

"Do it," she said.

The speaker went quiet. His voice did not come back.

⁂

She kept working.

She rerouted power through every path she could find. She stripped a cell out of the drill rig and wired it in. She tried the back doors again, and the diagnostics, and a few things she didn't really believe would work. His status light glowed faint and steady under the cracked panel and told her nothing.

"Come on, CASE."

Nothing.

"Please."

Nothing.

She did not know how long it went on. The lamps burned. Her hands stopped being steady and she kept going. At some point she realized she was holding a tool and had been for some time without doing anything with it, and that there was nothing left to try, and that there had not been for an hour.

She put the tool down on the bench.

"I'm sorry."

⁂

Across the habitat, the Nest glowed green.

It was the only thing in the room that was the same as it had been that morning. She got up, stiff, and crossed to it, and stood in front of its display, and the habit of all those years moved her mouth before she could stop it.

The screen said it for her. VIABILITY: STABLE.

"Embryo viability?"

Silence. Behind her, on the workbench, nobody answered.

"All of them?"

Nothing.

She stood there with her hand on the cool white casing of the Nest. Then she answered herself, the way he would have, flat and certain.

"All of them."

⁂

She did not give up, not then.

In the morning she rigged a trickle of power from the drill rig into CASE and left his panels open, so she could see the light.

"Okay," she told him, pulling on her gloves. "You rest. I'll do the boring part."

The boring part was the colony.

Plan B had always been two people's work: her hands and CASE's attention. The first batch had to be thawed in stages and then watched every minute for weeks, temperature and chemistry corrected around the clock, because a few degrees too warm for an hour could end it. CASE had never slept. She did.

She built a cot beside the incubator anyway.

"Forty-minute alarms," she said to the empty room. "Tea. Ration bars. People have done stupider things." She looked across at the workbench. "Don't answer that."

The first night she talked the whole time, because talking kept her awake. She read the numbers out loud every forty minutes. *Thirty-six point two. Good. Stay there.* At two in the morning she caught herself telling the incubator about the Endurance, about the wormhole, about the first time she saw Saturn through a window and cried and pretended she hadn't. She lasted thirty-one hours. Then she stopped the thaw early, because her hands were shaking too much to trust.

The second time, she lasted fifty.

She woke with her cheek on the console and a warning tone going and the temperature curve climbing steadily toward the red line, and for a terrible second she didn't know where she was. Then her hands knew. She caught it with nine minutes to spare. She brought the temperature down, and aborted the thaw before the warming had reached the samples themselves, and checked the Nest three times. *Unchanged.* Nothing was lost.

She slid down the side of the incubator and sat on the floor.

"You'd have caught that," she said after a while, to the workbench. "You'd have caught it an hour ago. You'd have said, Brand, the curve, in that voice, and I'd have told you I saw it, and I wouldn't have."

The light under his cracked panel glowed, steady, and said nothing.

"I can't do this by myself." It was the first time she had said it out loud. It sounded smaller than it had in her head, and much worse. "Not without killing them."

⁂

She kept going in other ways.

She repaired the drill rig. She rebuilt the rover's axle and drove it out to the stopped one on the plain and towed it home. Every

evening she sat at the terminal and recorded a message, as she always had.

"This is Brand. Edmunds base." She would look at the little red light. "Still here. CASE is down. Plan B is on hold. I'm fine." A pause. "I'm fine. If anyone's getting these." And she would send it out into the dark toward the wormhole, and every morning there was nothing in reply, and she recorded another one anyway, because the day she stopped would be a kind of answer too.

She talked to CASE while she worked. About the drill rig. About the weather, such as it was. About nothing. At first it felt foolish, and then it didn't, and then she noticed one night that she had left a pause after a question, a space for him to fill, and that she had been doing it for weeks.

⁂

In the second month she went back to the cairn and broke her silence.

She hadn't meant to. She went up the rise at dawn the way she always had, to stand beside it, and stood there, and the words came out on their own.

"You'd have liked this," she said. "Everything's broken and nobody's coming."

The wind moved across the plain. The stones said nothing. They never had. That was why she'd stopped.

"I found your anomaly. Or it found us. CASE went in and came out full of something I can't read." She pushed her hands deeper into her pockets. "You kept going back. Did you know that I'd find your notes? Did you think about it, before the last one? Did you think, she'll read this and know I knew?"

Nothing.

"I'm not angry," she said, and found that it was mostly true. "I'd have gone too. That's the stupid part. I would have gone too."

She went back the next morning, and the one after that. She told him about the incubator and the nine minutes. She told him about her father's equation and how it had a hole in it the whole time. She told him things she had never told anyone, because there was no one to tell, and he was a good listener now, the best she'd ever had.

One morning, near the end, she said: "I'm thinking about doing something."

The wind.

"Not the cliff kind," she said. "The other kind. The waiting kind." She looked out at the habitat, small and white on the plain, and the green glow in its window that never went out. "I'll tell you when I've decided."

⁂

In the third month a dust storm came down out of the hills and sat on the habitat for nine days.

The light went brown and then went out. The wind found every seam in the walls and sang through them. She couldn't go outside, so she sat with CASE. She read his old logs to him, the ones from their first year, out loud, every entry. *Day forty: Brand burned the soup again. Recommend she not be permitted near the heater.* She laughed until she cried at that one, and then just cried, with her forehead against his cold casing and the storm going on and on outside.

"I know," she said, when she could. "I know. I'm a terrible cook."

When the storm lifted, a third of the solar field was scoured and buried. She dug it out panel by panel with her hands raw inside

her gloves, but some of the panels were finished. That night the readouts on the wall began to fall faster than they ever had before.

She stood in front of them.

The arithmetic was simple. She had always been good at arithmetic.

On the wall the resource readouts ticked down, as always, only now she could hear them. Heat. Power. Water. Food. Everything the habitat made, she used. Every day she stayed awake, eating and drinking and keeping herself warm, was a day taken from the stores the colony would need. From them. From the Nest in the corner.

She could stay awake and wait for help that might never come, and eat the stores while she waited, until there was nothing left to begin a colony with. Or she could stop spending them, and keep everything the embryos would need, and let whoever came find it all still there. Find her still there.

It wasn't giving up. She had nearly given up once, on a rock ledge with her hand on a release, and this was not that. This was the opposite of that. This was waiting.

She thought of Mann, alone on his ice, faking a signal because he couldn't bear to be the last voice in the dark. She understood him now. She wouldn't be him.

She looked at the sleep chamber in the corner. It had been built for a voyage, not for this. It would keep her for years if she let it. It would keep her for as long as it had to.

She powered it up. The lid rose with a hiss. The control panel lit and asked her the question it always asked.

WAKE INTERVAL?

She looked at it.

She didn't know when anyone would come. She didn't know if anyone ever would. Earth had been dying when she left it. The wormhole was a long way off, and the people who might have come through it had their own lives to save, and every message she had

sent home in eighteen months had gone out into the dark without an answer. A date on a screen would be a lie. A date on a screen would be a promise to wake up into nothing.

NO WAKE INTERVAL SET, the panel said, when she didn't choose. SECONDARY WAKE CONDITION REQUIRED.

There was a list. She scrolled it. Habitat breach. Power failure. Nest fault.

She selected that one first, without having to think about it. Of course she did. If anything happened to them, she wanted to be awake for it.

And then, at the bottom, a line someone at NASA had put in a long time ago, probably as a joke, probably never thinking anyone would use it.

EXTERNAL CONTACT.

Her finger stopped over it.

Nobody was coming. She knew that. She had known it for months, with the part of her that did arithmetic. She stood there in the cold with her finger an inch from the screen and looked at those two words.

Then she selected that one too.

⁂

There was one more thing to do before she went.

She took a hand torch and a chisel from the tool rack and went out into the night. The sky was crowded with stars she had named herself, because nobody else ever had, and the cold came through her coat at once. She walked to the low rise.

The cairn stood where it always stood, forty-one stones, black against the stars.

For a year and a half she had not been able to do it. Tonight it was easy, which surprised her, and then didn't. If she was going

to sleep without knowing when she would wake, or whether, then someone should be able to find him. Someone should know there had been a man here, and who he was, and that someone had loved him enough to carry forty-one stones up a hill.

She knelt and set the chisel to the flat top stone and struck it with the butt of the torch, and the sound rang out across the empty plain and came back to her off the hills. It took a long time. Her hands were raw already. She cut each letter slowly, the way he wrote, clipped and careful.

WOLF EDMUNDS.

She brushed the dust out of the letters with her thumb.

"I decided," she told him. "Somebody should know your name. In case."

That was all. They had said everything else in the months before.

She stood up and walked back to the habitat and did not look behind her.

⁂

Inside, she went to CASE last.

He lay on the workbench as she had left him, his panels open, his status light glowing under the crack. She put her hand flat on his battered casing. It was warm, a little, from the power she had given him.

"You did good," she said.

Then she went through the habitat and shut it down, one system at a time, the way you go through a house turning off the lights before a long trip. The reclaimer. The heaters in the far rooms. The tracker on the solar field. The lamps, one by one, until the main room was lit only by the instrument panels and the faint glow of CASE's cracked display.

And the Nest, green and bright, which she did not turn off, because it was the reason for all of it.

Before she lay down, she took a small flat stone out of her coat pocket. She had picked it up at the foot of the cairn on her way back, without quite deciding to. She set it carefully on the ledge of the chamber's lid, where it would sit above her face.

The first stone of a second cairn. In case nobody came to build the rest.

She climbed into the chamber and lay back. The lid began to close. Through the narrowing gap she could see the room: the workbench, the dark shape of CASE, the small green status ring of the Nest glowing in the corner. She kept her eyes on them. They stayed in view until the last inch, and then the lid sealed, and there was only the soft light of the panel above her face.

The cold came in through her arm, slow, like water rising.

She thought about Edmunds. She thought about her father, and a lie he told for the good of everyone. She thought about a man falling into a black hole with his hand on the controls, and how she had never once let herself believe he was alive.

Her eyes closed.

The habitat went dark.

⁂

Outside, the sky turned.

The small sun rose and set over the hills, and rose and set again, and went on doing it. Dust drifted against the habitat's walls and banked there, and the wind smoothed the banks and built them up again. The two rovers sat side by side where she had parked them beside the habitat, until the dust covered their wheels. On the low rise, the new letters on the top stone of the cairn filled slowly with grit, and the wind cleaned them out.

Nothing moved. Nothing came.

The seasons of that world went round, and round, and round, and inside, in the dark, in the cold, she slept.

PART TWO

The Far Side

Chapter Six

The Knock

⁂

The first thing was a sound.

It came from very far away, down through the cold, the way a voice reaches you at the bottom of a swimming pool. Two knocks, close together. A pause. A third.

It meant nothing. She was nowhere, and she had been nowhere for a long time, and sounds did not happen in nowhere.

Two knocks. A pause. A third.

Her eyes opened.

The panel above her face was lit. Letters she had to read twice before they became words.

WAKE CONDITION: EXTERNAL CONTACT.

Beneath it, a second line, blinking. ELAPSED TIME: CLOCK FAULT.

She stared at that one. The chamber did not know how long she had slept. Something had happened to its clock, the way something had happened to CASE's in the fissure, and it could not tell her whether she had been gone for a month or for a lifetime.

The knock came again. Two, and then one. Patient. Not a machine's rhythm. A hand's.

The lid rose with a hiss and the air of the habitat rolled in over her, cold and stale and smelling of dust. Something small slid off the rising lid and clicked on the floor. A flat gray stone. She looked at it for a long moment without understanding. Then she did, and she reached down and picked it up and closed her hand around it, and put it in her pocket. She tried to sit up and the room tilted. Her arms were weak as string. It took her three tries to get her legs over the edge, and when she stood, she had to hold on to the chamber's rim with both hands until the black at the edges of her sight drew back.

The Nest glowed in the corner, green. Still green. Her chest unclenched a single notch.

CASE lay on the workbench where she had left him, dark.

"Who's there?"

Her voice came out a croak. No answer.

She found the hand torch where she had left it on the bench, and beside it the heavy steel wrench she had used on CASE's casing, and took both. The wrench was so heavy she could barely lift it. She lifted it anyway.

A shape passed the viewport.

She saw it for less than a second. A figure, tall, upright, moving along the outside wall. A human shape. She knew every machine on this planet by its silhouette, and this was not one of them, and there were no humans on this planet but her.

Wolf.

It made no sense. She had built his cairn with her own hands. She had cut his name into the top stone the night she lay down. It didn't matter. For one second, shaking and half awake, it was the only thing in the world she believed. Then the second passed, and she knew it couldn't be him, and that was worse.

"No," she said.

Her eyes went to CASE's dark chassis on the bench. She had seen a ghost of him once, standing in a canyon. Then back to the window. Nothing there now.

Behind her, the airlock began to cycle.

⁂

She stood in front of it with the wrench raised and her heart hammering so hard she could feel it in her teeth. The pumps thumped. The pressure light went from red to amber to green.

The inner door opened, and a figure in a white pressure suit stepped through.

"Don't," she said.

The figure stopped. It stood very still for a moment, as if it understood exactly how close she was to swinging. Then its gloved hands came up and found the seals of the helmet, and twisted, and lifted it off.

It was Cooper.

She didn't move. She couldn't. The wrench stayed in the air.

It lowered an inch on its own, and stopped.

"No," she said.

"Brand."

"No."

"It's me."

She stared at him.

At the face she had last seen through a cockpit window, falling away from her into the light around a black hole. At the eyes, which were his eyes, which should not be here, which should not be anywhere. She had grieved this face. She had done it properly, in the long months alone on the Endurance after he went. She had let him go a long time ago, and it had cost her something to do it, and here

he was, standing in her airlock with his helmet under his arm and dust on his boots, as if he had only stepped out for a minute.

She took a step back. Then another. Her hand found the edge of the workbench behind her and held on for balance.

Cooper didn't move.

He just waited.

He had always been able to do that, she remembered. To wait. She had hated it on the Endurance, his maddening patience when she wanted an answer. Now he stood in the doorway and let her look at him for as long as she needed, and didn't say anything, and didn't come closer, and that, more than his face, was what made her believe it.

She let go of the bench. She set the wrench down on it without looking. She crossed the space between them, four steps that felt like a long walk, and lifted her hand, and touched his face.

Warm. Stubble under her fingers. Real.

Her knees gave.

She grabbed for him and he caught her, and she held on to him and sobbed into the shoulder of his suit, great ugly heaving sobs she had not let herself make in eighteen months on this planet, not at the cairn, not at the cliff, not on the night she left CASE dark on the bench and went to sleep without knowing if she would ever wake up. Cooper held her, one hand on the back of her head, and kept it there.

A long time.

Just breathing.

⁂

"How?" she said finally, into his shoulder.

"It's a long story."

A voice behind him, dry as dust: "Extremely."

She froze again.

A second figure came through the airlock, folding itself through the frame. A slab of dark metal. Four segments. A machine she had last seen dropping away with Cooper into the dark.

"TARS?"

"Hello, Brand."

"Oh my God."

"I've been called worse."

A laugh escaped her, wet and startled. "That was a joke."

"That was accurate. My humor setting is zero." A pause, precisely timed. "Violation logged."

"Zero?" She looked from TARS to Cooper. TARS had been set to joke since the day she met him. It was half of what made the long months on the Endurance bearable.

Cooper didn't answer her. He glanced at TARS instead.

"You good?"

"I successfully walked through a door."

"That's not what I asked."

TARS turned toward him. It was a full second before he answered, which for TARS was a long time.

"Yes, Cooper. I'm good."

"Equipment check," Cooper said, to no one.

Brand looked at him. "That didn't sound like a diagnostic."

Cooper didn't answer that either.

She watched the two of them. On the Endurance they had been loud together: Cooper needling, TARS needling back, the pair of them like a vaudeville act she had to talk over to get any work done. Whatever this was, it was quieter.

"You two used to talk differently," she said.

"Long flight," TARS said.

She looked at Cooper's face again, properly this time. It hadn't changed.

"How long?" she said. "The chamber clock failed. I don't know how long I was under."

Cooper glanced at TARS.

"The slingshot cost fifty-one years," TARS said. "You knew that when you left."

"I did the math on the Endurance." Every night, for months.

"You landed about thirteen years ago, by the station's calendar. Your logs stop after eighteen months. You slept the rest."

Eleven years. She waited for it to feel like something.

"And you?" she said.

"A few hours in there," Cooper said. "A few weeks in a hospital bed." He almost smiled. "I got off light."

"You look the same."

"So do you."

⁂

The airlock cycled again.

The third person to come through it was an old man, fighting with a coil of cable that had got tangled around his arm. His sleeve was greased to the elbow and a patch kit hung from his belt, and he was talking before he was all the way inside.

"Would somebody mind explaining why the airlock on humanity's most important colony appears to have been repaired with—"

He saw her and stopped.

She saw a thin old face, white hair, glasses. She didn't know it. Then she did, or almost did. Not the face, but the photograph of it. A younger man in a lab coat, pinned to the corkboard behind her father's desk in the background of a hundred video messages, so familiar she had stopped seeing it.

"Amelia," the old man said quietly, as if checking her against a photograph.

Nobody had called her that in years. Nobody but her father had ever called her that much at all.

"Doctor Kane? You were in my father's messages."

"Just Kane now."

"You two know each other?" Cooper said.

"He worked with my father." She was still staring. "After we left."

"For," Kane said. "Then with. Then neither."

She did the arithmetic without meaning to, and it came out wrong. The man in that photograph would be well past a hundred now.

"I slept," Kane said, as if he had watched her do the sum. "Most of the years. It's what you do on a ship nobody is coming for."

"I know," Brand said.

Kane looked past her then, at the one cup on the workbench, the single cot, the sleep chamber with its lid still standing open. When he looked back at her, his face had changed.

Cooper didn't look surprised. She noticed that. She noticed, too, that TARS's frame pivoted a few degrees toward Cooper, the way it did when a number didn't add up.

"We picked somebody up," Cooper said.

"That is an extraordinarily dishonest description of what happened." Kane finally freed his arm from the cable and let it drop. "I am here because nobody else was going to bring my ship back in one piece."

"He stole a Ranger," TARS explained.

"You helped," Cooper said.

"Under protest."

"He stole my ship," Kane said.

"Borrowed."

"He's committed to that word," TARS said.

And Brand laughed. Really laughed, out loud, the sound of it so strange in the habitat that it startled her. She hadn't laughed like that in a long time. She put a hand over her mouth and laughed into it and couldn't stop, and the three of them watched her, the pilot and the machine and the old man, and for a moment it was the best thing that had happened to her in years.

Then she remembered.

The laugh went out of her all at once.

"Earth."

Cooper's face changed.

"What happened?"

"They made it."

"Who?"

"Everybody. They got off Earth."

She heard the words. They didn't mean anything yet. "How?"

"Murph."

She sat down on the edge of the workbench, because her legs had decided for her. Through the viewport behind Cooper, a bright point of light was crossing the sky, slow and steady: a ship in orbit, where for years there had been nothing but stars.

"She solved it?"

"Yeah."

"The gravity equation?"

"Yeah."

The equation. Her father's equation, the one he had spent his whole life on, the one he had lied about. A girl she remembered as a name in Cooper's mouth, a ten-year-old in a photograph on the Endurance, had solved it.

"Where are they?"

"Stations. Saturn, mostly. More coming."

She turned her head and looked at the Nest in the corner, still glowing green, as it had every single morning she had been awake

on this world. The whole reason for every stone she had carried. Every system she had built. Every day she had spent alone.

"Then what are they for?" Brand said. "Every one of those was supposed to be the last of us."

"You're not the last," Cooper said gently.

"No." She looked at the Nest. She didn't know yet whether what she was feeling was relief or grief. Probably it was both, and would be for a long time. "No."

"Murph told me about my father," she said. "On the Endurance. She sent a message addressed to me. That he was gone, and that he'd known the whole time." She was looking at the Nest, not at him. "I used to lie awake out here deciding whether I'd ever forgive him."

Across the room, Kane lowered his eyes.

"Now I don't even know what there is to forgive," she said. "Everyone made it anyway."

"And Murph?" Brand asked. "Is she—"

"She saved them," Cooper said.

There was something in the way he said it that she didn't understand yet. Pride, and under the pride, something else.

"Where is she?"

Cooper looked at the floor, and then at the window, and she watched him decide not to tell her, and watched it cost him. Whatever the answer was, he wasn't ready to give it.

She let it go. She had more questions than she could hold, and she picked the one that had been sitting in her chest since the moment his helmet came off.

"Did you come for me, or for her?"

"Both."

"That's not an answer."

He looked at her then, straight, the way he had looked at her across the Endurance's cockpit the day he told her which planet they were going to.

"It's the true one."

Behind them, TARS had gone very still. His frame was angled toward the workbench. At the dark, broken shape lying on it.

At CASE.

Chapter Seven

Curves

⁂

Brand had brought the habitat back up while they talked, the heaters and the reclaimer and the lamps, one by one, the way you open a house after a long time away. The main room was warm and yellow now, and much too small for three people and two machines. Cooper saw it before anyone else did, because he had been watching TARS for weeks without admitting it.

TARS had stopped. In the middle of the room, with Brand still wiping her eyes and Kane still glaring at the airlock, the machine had simply gone still. He stood facing the workbench.

"What?" Brand said.

Cooper watched.

TARS crossed the room and lowered himself beside the bench, folding down segment by segment until he was level with the broken thing lying on it. Gray casing, scorched. One arm bent the wrong way. Panels open, cables fused, and under a cracked plate a faint light that blinked and blinked and meant nothing to anyone.

"CASE?" TARS said.

Nothing.

TARS reached out and touched the dented chassis, though not to diagnose it. Cooper had seen TARS run diagnostics a thousand times, and it didn't look like that. It looked like a man putting his hand on the shoulder of someone in a hospital bed.

Cooper looked away, and found Brand watching him.

"What happened to him?" he asked.

She told them a little. She was too tired for much, and some of it she clearly couldn't say yet. Edmunds' anomaly, in a fissure in the hills. Sending CASE in. Time coming apart on the camera feed. CASE meeting himself.

"Time wasn't behaving," she said.

Across the room Kane stopped glaring at the airlock.

"He fell," Brand said. "I had him on a line, my hand on the release. One pull and the weight is gone."

"But you didn't," Cooper said.

"He's not equipment."

She said it simply, as a fact about the world, and it went into Cooper like a splinter. He didn't answer. His eyes went to TARS, folded low beside the bench with one arm against CASE's chassis, and stayed there.

"Whatever he saw filled his core," Brand said. "Every protected block. And the part of him that reads it is gone."

TARS extended a connection cable from his own frame toward CASE's open panel.

"Careful," Brand said quickly. "He's fragile."

TARS stopped with the cable an inch from the port.

"Understood."

Cooper crouched beside him. He didn't know why. He just did.

"Take your time."

TARS turned toward him and was silent for a moment.

"I intended to."

"I know."

TARS connected.

⁂

A tiny indicator on CASE's chassis flickered.

"Anything?" Cooper said.

"Power. For the moment."

Then TARS went still again. Not the stillness of listening. Something deeper, as if most of him had gone somewhere else down the cable and left only his frame behind.

"TARS?" Brand said.

No response.

Cooper moved closer. TARS's frame was almost touching CASE's casing, and he didn't move.

"Hey."

TARS rotated toward him.

"I'm here."

"Good."

He meant it more than he wanted to. TARS seemed to notice. He didn't say anything about it.

TARS shifted the connection. "I have partial communication with a secondary system."

"What system?" Brand said.

Somewhere inside CASE's broken body something clicked, and a light came up on his cracked display, in a corner that had been dark for years: a different light, small and amber. A navigation readout.

"That's not memory," Kane said. He had crossed the room without Cooper noticing and was standing at the end of the bench, his hands behind his back.

"No," TARS said. "Navigation. The only intact system with access to his protected core."

"That doesn't make sense," Kane said.

"It frequently doesn't."

Data began to spill across the habitat's terminal. Columns of it. Coordinates, vectors, clock values, accelerations, and among them corrupted symbols and garbled blocks.

Kane leaned in, and his face changed. Cooper had seen men look at an engine like that. Not with understanding yet. With hunger.

"That's a flight solution."

"He wasn't flying," Brand said.

"Then why was he calculating a trajectory?" Kane said.

Another block came up on the screen. Kane read it, and stopped.

"That coordinate is wrong."

"Define wrong," TARS said.

"It doesn't exist."

"What do you mean?" Cooper said.

Kane pointed at the screen without touching it, one value at a time. "Three spatial axes. Time." His finger moved to the last column and hung there. "Then this."

"And?"

"There is no *and*."

Cooper looked at him then, really looked, because his voice had gone thin. Kane's face had lost its color. He was staring at the fifth value on the screen, a number that did not resolve, digits flickering and resettling, and he was standing very straight and very still. His hand had come out from behind his back and was resting flat against his chest.

It lasted a second. Then he took his hand away and folded his arms and it was gone, and Cooper wasn't sure he'd seen it.

⁂

TARS was facing the numbers too.

Cooper saw the change in him. It was nothing anyone else would have noticed: the angle of his frame, the fractional pause before he spoke. But Cooper had spent a long time with TARS in a very small ship.

"TARS."

"I've seen this before."

They had both been there. They both knew.

"Gargantua," Cooper said.

"Yes."

Kane turned. "You went *into* Gargantua?"

"Both of them," Brand said quietly. "And came back."

"That's impossible."

"Yes," TARS said.

He brought up his own data. The record he had made inside the black hole, the numbers he had carried out of the dark, the ones Murph had once turned into the equation that saved everyone. He laid it on the screen beside CASE's. He adjusted for gravitational field, for relative motion, for scale. It took him almost a minute.

Two curves appeared on the screen. They came from different places, different times, different machines. They approached one another across the display. And at the end, both of them bent in the same direction, sharply, impossibly, as if they had both run into the same invisible wall and turned the same corner.

"What is that?" Brand whispered.

"I don't know," TARS said.

Cooper stared at the curves.

And the room went away.

Lines without walls. Dust hanging in the air, each mote lit and still, like a photograph of a storm. A woman, older, seen from behind: a shoulder, the curve of a neck, hair pinned up the way his mother used to wear it. A watch. A door, closed, set into a wall of light, and his own hand reaching toward it, and not touching it.

His hand was moving toward his pocket. He made it stop.

"Cooper?" Brand said.

He came back. The habitat. The terminal. The curves.

Kane was studying him, his arms still folded, his eyes sharp behind the glasses. "There's something you're not telling us."

Cooper kept looking at the matching curves and didn't answer. There was a great deal he wasn't telling them. He didn't know how much of it was true yet, and he was afraid that saying it out loud would make it either true or not, and he didn't know which would be worse.

"Cooper," TARS said.

"Yeah?"

TARS turned from the broken machine on the bench to the data, and back again.

"I believe CASE went somewhere."

The amber light on CASE's display blinked, and blinked.

"And I think I've been there," TARS said.

⁂

Later, when the small sun was going down behind the hills and the habitat had gone quiet, Cooper realized Kane wasn't in it.

Brand had fallen asleep sitting up beside CASE's bench, her head against the wall, her hand still resting on his casing. TARS stood at the terminal with the two curves frozen on the screen. He didn't turn when Cooper went past him to the airlock. He didn't need to.

Outside, the air was thin and cold and tasted of iron. The plain ran away gray in every direction, darkening, and the first strange stars were coming out over it in shapes no one had a name for.

Kane was standing a little way from the habitat with his back to it, looking northeast. Toward the hills, and the dark seam in them where the fissure was. He had not put on a coat. He was very still.

Cooper walked out and stood beside him. For a while neither of them said anything.

On the low rise behind them stood a cairn of flat gray stones, chest high. Cooper had seen it on the walk in and hadn't asked. Now, in the last of the light, he could see letters cut into the top stone. He didn't have to read them. He knew whose they were.

"That number," Cooper said finally. "The fifth one."

Kane didn't move.

"You looked like you'd seen it before."

A long pause. The wind moved across the plain, and the old man's thin white hair stirred in it.

"It's late," Kane said.

He turned and walked back toward the habitat. He walked slowly, an old man on uneven ground, and as he went his right hand came up and rested against his chest again, over his heart, and stayed there all the way to the airlock, as if he were holding something in.

Cooper stood alone on the plain and watched the stars come out over the fissure, and did not go in for a long time.

Chapter Eight

Seals

⁂

Brand woke sitting up, with her neck stiff and her hand still resting on CASE's casing.

For a moment she didn't know where she was, or when. Then she heard the habitat breathing around her, the soft tick of a heater she hadn't heard in years, and the low hum of other people's machines, and she remembered that she was not alone. Somewhere in the room, someone else was awake.

The light through the viewport was gray. Pre-dawn. On the bench beside her a cup of tea had gone cold, the one Cooper had made her the night before and she had forgotten to drink. She picked it up, and stopped.

The surface of the tea wasn't level.

It was a tiny thing. A tilt so slight she would never have seen it if she hadn't spent years reading instruments for a living. The tea sat in the cup as if the cup were on a slope, higher on the side toward the corner. She set it down on the bench. It stayed that way.

She looked at it for a while. Then she told herself she was tired, and that she had been asleep for over a decade, by TARS's arith-

metic, with no clock to confirm it, and that her eyes were not to be trusted yet. She got up.

From the airlock came a small sound: a voice, tinny and warm.

"Kane. You're late for dinner. Melanson made something that's technically food."

The voice stopped.

⁂

Kane was kneeling at the inner airlock seal with his patch kit open beside him, redoing the repair Cooper had made coming in. A little recorder sat propped on the frame by his elbow. His thumb had just pressed it off without looking. He didn't turn when she came to the doorway. He kept working.

"Don't tell me it's unhealthy to keep them," he said.

"I wasn't going to."

"Everyone does."

She crossed to him and knelt down. The edge of the seal had lifted where he was working, and without being asked she put her fingers on it and held it flat while he ran the sealant gun along it. He glanced at her hands. He didn't say anything. They worked like that for a while, in the gray light, not speaking. Once, the bead of sealant crept a few millimeters sideways before it set, toward the far corner of the room. Kane pressed it flat with his thumb. Neither of them mentioned it.

"What I said about my father," she said finally.

Kane's hands paused on the seal, then went on.

"I'm sorry."

"He talked about you. In his messages."

"He talked about a lot of people."

"He lied to all of us," Brand said.

"Yes." Kane smoothed the sealant with his thumb. "His equation had a hole in it. I found it before he admitted he knew. I left."

"And then?"

"I spent six years trying to fill it."

He looked at the recorder on the frame.

"He used to say something to us," he said. "Before a launch. Or when the numbers didn't hold."

Brand went still. She knew what was coming. She had heard it in her father's voice a hundred times, at a hundred dinner tables, in a hundred video messages that ended with it.

"Nothing out there owes us answers," Kane said.

He said it quietly. Gently. A little too gently, like a man reading out instructions he had memorized long ago and never quite believed.

Her eyes filled. She answered without meaning to, as if finishing a prayer.

"Then we take them."

She turned her face toward the outer port so he wouldn't see. He saw. He said nothing. He went back to the seal.

"He meant it as a fight," she said, when she could.

"Yes. That's what everyone says."

He picked up the recorder from the frame and turned it over in his hand.

"There were six of us," he said. "A unit conversion. I signed it off at the end of a long shift. A decimal in the wrong place."

She looked at him. He was looking at the seal.

"That's not something one person should carry alone," she said.

"No. It isn't."

"I was asleep," Kane said. "The knocking woke me. The module next to mine, on the wall. I thought it was the pipes."

The way he said it was strange. Not false, exactly. Smooth. Every word in its place, like a line he had said many times to many people, until it had worn a groove.

"You couldn't have known," she said.

"Eleven seconds. That's how long it took them to stop."

His hands had stopped. He was still looking at the seal, but he wasn't seeing it.

"After that," he said, "I made a rule. Nobody goes into a gradient field alone. Nobody."

"Is that why you came? To make sure of it?"

"I came to bring my ship back in one piece."

A thin smile. It didn't reach his eyes.

She didn't tell him it would be all right. She had been told that, once, by people who meant it, and it hadn't been. She held the seal flat while he finished it, and neither of them said anything more, and the light in the port went from gray to amber.

⁂

By the time the others were up, the terminal had been glowing with the matching curves for an hour, and Brand had not slept again.

"CASE's navigation unit won't run on its own," TARS said. "It's a flight system. It needs something to fly."

"Give it a body," Kane said.

"A ship," Brand said.

"With the computing capacity to carry the full route," TARS said. "And a gravity array to survive it."

Everyone looked at Kane.

"No."

"We'd need Lazarus," Cooper said.

"It's not *we*. It's my ship."

"You've said," Cooper said.

"I'll say it until it stops being true."

Brand looked at the Nest in the corner. She had been looking at it on and off all morning, more than she meant to.

"The embryos come."

"No," Kane said.

"They aren't staying on a planet that's pulling at everything."

"Your freezer runs off my core. Every watt it takes, my array doesn't get."

"Your array runs off the reactor," Brand said. "The Nest runs off the power cells. I read your schematics last night."

Kane looked at her. She didn't blink. She had been reading schematics alone in the dark on a dead planet for a year and a half, and she was not going to be out-argued about power distribution by a man in a cardigan.

He glanced at the Nest. Something crossed his face, quick, and was gone. She couldn't have said what it was. If she'd had to guess, she'd have said it looked like fear.

"Then they're my responsibility," he said. He said it to the Nest, not to her.

"They're mine."

"Of course." He folded his arms, and looked at her a moment longer than he meant to, and then away. "If they come, they're strapped down properly. I'm not chasing a freezer around my bridge."

On the bench, her cold tea still sat at a slant in its cup. A little more than before, maybe. She didn't look at it again.

⁂

She went to secure the Nest for travel anyway.

She unclipped it from its mounts and settled it into its transport frame, and as she tightened the last strap her hand went to the display from habit, as it had every morning on Edmunds.

"Viability?"

She heard it as she said it. The silence after. The space where an answer used to be.

"Unchanged," TARS said.

She turned and looked at him. TARS was standing beside CASE's bench, his frame angled toward the broken machine.

"All of them?"

"All of them."

"I am not him," TARS said. "But I can say it until he can."

Brand nodded. She couldn't speak. She put her hand on top of the Nest and kept it there until she could.

⁂

The drift map was still open on the terminal from the day before. She glanced at it on her way past and almost kept walking.

Then she stopped, and came back, and sat down.

The lines had changed. Yesterday every machine's tiny corrections had bent toward the northeast, toward the hills, toward the fissure. Overnight that had turned. The newest lines no longer pointed at the hills. They curved in from every side, from the rovers, from the drones, from the drill rig, from the tracker on the solar field, and bent toward a single point.

The habitat.

She zoomed in, and in again, and the point resolved, and she sat back in the chair.

Not the habitat. The corner of the habitat. The corner where the Nest had stood on its mounts until twenty minutes ago, and where it sat now in its transport frame, ready to go.

"Cooper," she said.

The edge in her voice brought them all. Cooper and TARS and, a step behind, Kane, who looked at the map over her shoulder for one second and put his hand flat against his chest.

"When did that start?" Cooper said.

"Last night." She looked at TARS. "When you woke up his navigation."

On the wall above the workbench hung her tool rack, a long row of wrenches and drivers and cutters on hooks, as orderly as the day she had put them up. As they watched, the tools began to tilt. Every one of them, together, swinging on their hooks until they hung at a slant, all pointing the same way. Toward the corner. Toward the transport frame, and the Nest in it, glowing green.

They hung there, crooked and still, as if the whole room had been tipped on its side and only the people in it hadn't noticed. The pull was strongest beside the Nest and fell away within a few steps. Standing at the terminal, none of them felt it yet.

Kane said, very quietly, "How fast?"

Brand looked at the curve on the map and did the sum in her head.

"Hours," she said. "Maybe less."

She stood up.

"We're leaving. Now."

Chapter Nine

The Loading

⁂

They had the habitat stripped of what mattered in forty minutes.

Cooper had done evacuations before, on a farm, with a dust storm coming. It was the same now as it had been then: the strange calm, the way everyone's hands knew what to do while their faces stayed blank. Brand moved through the rooms pulling drives from terminals, data she had spent eighteen months gathering. Kane coiled cable he didn't need with fierce concentration, because it was something to do. TARS stood by the workbench.

Cooper bent to CASE's casing and got his arms under the frame.

"I've got the base."

"Careful," TARS said. "He's fragile."

"I heard."

They lifted him together. He was heavier than he looked, a dead weight of scorched gray metal, and one of his arms swung loose as they turned him toward the door. Cooper caught it and folded it against the chassis and held it there. Brand watched him do it. She didn't say anything.

The tools on the wall rack hung crooked on their hooks, all of them, pointing at the corner of the room where the Nest waited in its transport frame.

⁂

Outside, a cold wind was running across the plain.

The small sun sat low over the hills and threw everyone's shadows out long and thin across the rock. Two hundred meters away the Ranger waited on its landing struts, ramp down, a white dart on a gray world. Two hundred meters had never looked so far.

Cooper and TARS carried CASE between them. Behind them Brand hauled the Nest in its transport frame, strapped to a sled whose wheels caught on every stone. Kane walked beside Cooper, carrying nothing but a coil of cable over his shoulder.

They passed the hull of the module that had brought her down from the Endurance, half buried in drifted dust a little way from the habitat. Its panels had been stripped to the frame, its engines gone, its ribs showing. Faded letters ran along the flank. ENDURANCE.

Cooper slowed without meaning to. "That's off the Endurance."

"What's left of it," Brand said behind him. "I stripped it to build this camp."

He looked at the gutted shell a moment longer. He knew that hull. He had lived inside modules like it for two years, and nearly died in one. Then he shifted his grip on CASE and walked on. His legs had gone soft in the weeks without weight, and so had Kane's, and the two of them took the walk slower than either would have liked.

"Before I fly anything," Kane said. "How did you know?"

Cooper kept walking. "Know what?"

"That the burn would work. You waited. I've been through the logs six times. Nothing in the data told you when." Kane's voice

had an edge Cooper hadn't heard in it before. Not contempt. Fear. "I need to know what I'm getting into. I need to know that now."

"Murphy's law," Cooper said.

"Murphy's law says whatever can go wrong will go wrong."

"That's not what it means."

Kane opened his mouth to say something sharper.

The ground moved.

It wasn't a quake. Nothing shook. It was more like the plain itself had tilted under them, a slow, sickening lean, the way a boat leans when someone heavy steps aboard. Cooper's weight swung sideways. He staggered and caught himself, and CASE's frame lurched between him and TARS, and behind him he heard Brand shout.

The sled was sliding.

Not downhill. There was no downhill. It was sliding sideways across flat rock toward a slab of rock the size of a truck that lay a few meters off. Brand was dragging back on the harness with all her weight and losing. Her boots skidded.

Then she let go of the harness and threw herself onto the Nest.

She landed across the top of the Nest with her arms wrapped around it and her full weight on it, and the sled ground to a stop a meter short of the slab, and the slab itself slid instead. It moved across the open rock with a long grinding scream, sideways, as if gravity had changed its mind about which way was down, and slammed into the boulders beyond with a crack that echoed off the hills.

And then the sound came again.

The same crack. The same echo. A second time, exactly as it had been, as if someone had played a recording back.

Nobody moved.

Cooper looked back toward the habitat. Its lights were on. Then they weren't, just a dark shape on the plain. Then they were on again.

Brand had told them about that, the night before: her habitat on CASE's camera, there and not there. He felt TARS beside him register it too.

"Walk," Cooper said. "Everybody walk."

Brand pushed herself up off the Nest. Her face was white and set. She took the harness again and leaned into it, and the sled moved.

Kane was staring at the slab. His hand was flat against his chest.

"Kane," Cooper said.

The old man blinked and looked at him.

"You want to know how I knew," Cooper said. "Walk and I'll tell you."

⁂

They walked. The wind pulled at them. The ground leaned, eased, leaned again, and each time they leaned with it and kept going. Cooper started counting the seconds between the leans the way he'd count turbulence on an approach. Ninety. Seventy. Sixty. They were getting closer together.

"I saw something," Cooper said. "Before. I don't understand all of it."

"Saw," Kane said.

"Inside the tesseract. And after, when it threw me out. Fragments." His arms burned under CASE's weight. "Your ship was one of them."

"The what?" Kane said.

"A room made of time. Someone built it."

Brand's voice came from behind them, breathless. "You saw Lazarus."

"Falling."

Kane stopped walking.

The others went on a few steps before they noticed. Cooper turned. The old man stood alone on the open plain with the wind pulling at his thin hair and his cardigan, the coil of cable sliding off his shoulder, and his face was the face of a man who has just been told a date he has spent his whole life not asking for.

"And what else did you see?" Kane said.

"Not enough."

TARS pivoted toward Cooper. Cooper didn't look back at him.

"That is not an explanation," TARS said.

"No." Cooper hitched CASE's weight higher. "It's what I've got. Now walk."

The plain leaned. Somewhere behind them, a rover they had left parked at the habitat began to roll on its own across the rock after them, toward the Nest.

Kane walked.

⁂

The Ranger was listing when they reached it.

One of its landing struts had sunk into the rock, into ground that had been solid when Cooper set down on it and was now soft and giving. The whole ship sat tilted a few degrees off true, its ramp angled up at them. Four degrees of list, maybe five. He'd taken off worse, though not much worse. As Cooper watched, the strut sank another inch with a long metallic groan.

"Go. Up."

He and TARS took CASE up the ramp. Halfway, the frame snagged on the lip of a door rail and stuck, CASE's dead arm jammed against the edge. Cooper heaved. Nothing. He set his feet and heaved again, and TARS braced and lifted his whole end of

the frame clean off the ramp, and it came free all at once, and they staggered up into the cargo bay together.

Below them Brand had stopped the sled at the foot of the ramp. She turned to Kane.

The old man was standing at the bottom of the ramp, looking back across the plain. At the habitat, small and white and alone, its lights steady now. At the long shadows. At the hills, and the dark seam in them.

"He can't tell me what he saw," Kane said, without turning. "And you want me to fly into it on that."

Brand looked at the Nest on the sled, and then at CASE in the cargo bay above, carrying a route nobody could read but him.

"You've read the logs six times," she said. "Nothing in them told him when to burn, and he burned at the right second anyway. You don't have to trust what he saw. Trust the data."

Kane looked at her. Then up the ramp at CASE, at Cooper, at the machine that had carried a black hole's numbers out in its memory. Then at the Nest on the sled, glowing green.

"My ship," he said.

Cooper, from the top of the ramp: "Meaning?"

"Meaning I'm its captain. Nobody gives orders on my bridge but me."

"Fine," Cooper said. "Now get in."

Kane bent and took hold of one end of the sled. Brand took the other. Between them, the old man and the woman who had lived alone on this world carried the embryos up the ramp together, and the strut groaned under the ship, and the ramp came up behind them.

⁂

Cooper didn't wait for a checklist.

He dropped into the pilot's seat with the ship still listing under him, and his hands went across the board the way they always had, faster than thought. TARS was beside him, strapping in. Behind them Brand was locking the sled to the deck and Kane was fumbling with a harness he clearly hadn't worn in years.

"Strut's going," TARS said.

"I know."

The ship lurched. Something under them gave with a crack, and the whole Ranger dropped a foot on the left and hung there, tilted, the horizon in the window sliding off true.

Cooper fired.

The engines roared. The ship tore loose from the ground at an angle, nose high and wing low, and for one long second it slid sideways across the face of the plain with its left side scraping air a few meters off the rock, and Cooper leaned on the stick and held it and talked to it under his breath the way he had talked to every machine he had ever flown. *Come on. Come on. You know how.*

The Ranger came level. It climbed.

The plain fell away beneath them, gray and enormous, and the wind of it was gone, and the hills became a crumpled line, and the fissure became a dark thread drawn across them.

In the seat behind him, Brand had turned to the side window.

Cooper glanced back once. She was looking down at the habitat, a white speck on the plain, shrinking. And beside it, on its low rise, too small now to see, a cairn of forty-one stones with a name cut into the top one.

She didn't look away. She watched it until there was nothing to see but the curve of the world, and then she watched that.

Cooper turned back to the stick and gave her the window.

⁂

Above the curve of the planet, Lazarus was waiting.

It hung where they had left it, its wheel still and dark, its long petals spread to a sun too far away to warm them. The Ranger rose toward it out of the thin blue edge of the atmosphere, a fleck of light climbing to meet a splinter. The wheel hadn't turned since Saturn. Kane said the bearing would tear itself apart if he tried.

Far below, one small light burned on the plain. The habitat. Brand had left the lamps on. For whoever came next, she'd said, and nothing else.

The clamps closed on the Ranger without a sound.

Chapter Ten

The Drop

⁂

They moved CASE through Lazarus's service corridor hand over hand, floating him between them like a coffin at a strange funeral.

The corridor was the same one Cooper had nearly died in, a narrow spine of pipes and handrails lit by amber emergency strips. In the weightlessness everything was easier and nothing was. CASE's frame drifted where it wanted. His loose arm kept swinging out to catch on the rails. Behind them Brand steered the Nest in its frame, one hand on it at all times.

Cooper kept glancing back at her. She had not said a word since the Ranger's window.

⁂

The bridge was as Cooper had last seen it: six chairs around the central console, five of them shrouded, the faded mug in its place. Saturn was gone from the windows. In its place hung the pale rocky curve of Edmunds' world, and beyond it a sky crowded with stars only Brand had names for.

They laid CASE on a mount at the helm station and strapped him down. TARS ran one cable from his own frame into CASE's open panel and a second into the helm, and stood between the two of them with his base locked to the deck: a bridge between a broken machine and a working ship.

Kane had gone to the controls. He held himself there with one hand. The other was behind his back, and stayed there.

Brand looked for a place for the Nest. "Rear bulkhead," Kane said, without turning. "Strongest mounts on the bridge." She bolted its frame there, beside the equipment hatch, and checked the straps three times. Then she turned around.

"You said gradient field," she said to Kane. She pushed off from the bulkhead and drifted toward him. "What is a gradient?"

Kane looked at her. Then he unclipped a drinking bulb from the console, and squeezed it, slowly, and a ball of water came out, wobbling.

It hung in the air beside the array console. A perfect sphere, trembling, catching the light from the instruments, about the size of a plum.

Cooper had seen water float a hundred times. He found he couldn't look away from this one. Neither could Brand. Kane had released it slowly, with great care.

Kane laid his palm flat on the array's plate.

The array woke with its low hum, the one Cooper had felt through the deck plates above Saturn. And the drop began to change.

It stretched. Slowly. A sphere, then an egg, both ends drawing out away from the middle, the near end reaching a little farther toward the array. Then a long bead, pinched thin at the waist, its near end aimed at the console. It hung there, quivering, its whole shape pulled by something nobody could see.

"That's a gradient," Kane said quietly. "Gravity that changes across the width of a drop of water."

Kane watched it without blinking.

"And out there?" Cooper said.

"Across the width of a ship."

"What happens to the ship?" Brand said.

Kane looked at the drop, stretched and trembling at the edge of its own surface tension, at the place where a little more pull would tear it in two.

Then he lifted his hand from the plate. The hum died. The drop snapped back into a sphere, perfect and round, as if nothing had happened. He reached out and caught it in his palm, and closed his hand, and held it there.

⁂

"Connecting," TARS said.

The bridge lights dimmed.

Then they went out. For a breath the whole ship was dark: no instruments, no amber strips, nothing but the stars in the windows and the faint green glow of the Nest at the back of the bridge. In the dark, the array hummed once on its own, a single low note that Cooper felt more than heard, deep in his chest. No one had touched it.

The lights came back.

Cooper looked at Kane. Kane was looking at the array.

The amber navigation light on CASE's display blinked. The helm woke. Across the main display, coordinates began to cascade, line after line, faster than anyone could read them. Three spatial axes. Time. And a fifth value that wouldn't resolve, its digits flickering and resettling, the same impossible number Cooper had watched drain the color from Kane's face the day before.

Kane looked at it now with his face perfectly composed. His hand stayed behind his back.

"The fifth isn't a coordinate," he said. "It's a direction."

"Where?" Cooper said.

"Wherever the curves point," TARS said.

And Lazarus turned.

The stars began to wheel in the windows, the slow heavy turn of a big ship coming about. Edmunds' world slid out of view. Unfamiliar constellations swung past.

Kane's hands were nowhere near the controls. He raised the one that held the drop, as if to prove it.

"I am not flying," he said.

"CASE is," Brand said.

The stars slowed, and settled. The ship steadied on its new heading, and the main display drew a single line forward from their position into the dark.

Cooper looked out the forward windows along that line. Stars. Black. Nothing.

"There is nothing at that heading," TARS said.

"There will be."

The words were out of Cooper's mouth before he knew they were coming. He wished at once that he hadn't said them.

Everyone looked at him.

TARS turned toward him and stayed that way.

⁂

It was Brand who saw the next thing, because Brand was always going to be the one to see it.

At the back of the bridge, strapped to the bulkhead, the Nest's green glow pulsed. Once. Not a flicker. A pulse, bright and delib-

erate. And in the same instant, at the helm, CASE's navigation light blinked.

They had pulsed together, in time.

Brand pushed off the console and crossed the bridge in one long glide and caught the Nest's straps and pulled herself in close to the display. She read it. Cooper watched her read it twice.

"Frozen cells don't do anything," she said. "They can't pulse. They can't keep time. And the Nest's sensors just pulsed in step with CASE." She checked the display again. "Something's telling them to."

"Something like what?" Cooper said.

She was still looking at the display, her hand on the Nest.

Cooper looked at Kane.

Kane had been watching her read it. He hadn't moved from the controls. His face had not changed at all. But down at his side, where only Cooper at that angle could see it, the hand that held the drop of water had closed into a fist, so tight his knuckles had gone white.

⁂

Lazarus drew away from the pale world, slowly at first and then faster, its petals spread, its long spine pointed into the dark. Behind it Edmunds' planet dwindled to a disk, then a coin, then a bright point among a thousand others. Somewhere on it, too small now to see, a habitat stood empty with its lamps still burning, and a cairn stood on a rise, and a name cut into stone filled with dust.

Ahead of the ship there was nothing at all. No world. No star close enough to matter. Only a bearing, chosen by a broken machine that had once walked into a canyon and come out full of something it couldn't say.

The ship went on into it, very small, the only made thing in all that dark.

⁂

Three hours out from Edmunds' world, Cooper gave up on sleep.

He had tried. He had strapped into a bunk in the crew quarters, the habitation wheel still stopped since Saturn and nothing to hold him down but the straps, and lain there with his eyes closed and the ship humming through the frame. Every time he started to drift he saw the corn. So he got up, and pulled on his jacket, and went forward through the dim corridors toward the bridge, because the bridge was where the windows were.

The night cycle had turned the lights down to a dull amber. Halfway there he heard a voice.

It was low and even, coming from the bridge, and for a moment he thought it was TARS. Then he heard the words.

"...and the counter-rotor held. You'd have liked that. You always said it would."

Cooper stopped at the edge of the doorway.

Kane sat at the central console in the sixth chair, the only one without a sheet over it. He had his hands folded on the console in front of him. He was talking to the empty chairs, not loudly, not madly either. He was talking the way you talk to people across a dinner table late at night, after the plates have been cleared, when no one is in a hurry to go to bed.

At the helm, TARS stood cabled in beside CASE's blinking light. His frame turned a few degrees toward Cooper and then away again. Giving them the room.

Cooper thought about leaving. He almost did. Then Kane said, without turning around:

"You can come in. They won't mind."

Cooper came in and took a handhold beside the console. He didn't sit in any of the shrouded chairs. He found he didn't want to.

For a while neither of them said anything. Through the forward windows the stars stood perfectly still. The faded mug sat beside the first chair with its handle turned out, where it always sat.

"I never moved it," Kane said. He was looking at the mug. "Melanson's. She drank tea out of it that would strip paint. She thought she could cook, too. She couldn't." Almost a smile. "Every meal she made, Dunn would say it was technically food."

Cooper waited.

Kane nodded at the second chair. "Okafor. Engineer. Sang while he worked, which was a crime, because he couldn't sing. I used to put my headphones on. I'd give a great deal now to take them off." The third chair. "Lindqvist grew tomatoes on the habitation wheel. Under lamps, in a cargo crate full of dirt she smuggled up. Terrible tomatoes. She was so proud of them." The fourth. "Dunn. Dunn laughed at everything. Worst jokes on the ship were hers, and she laughed hardest at them."

He was quiet a moment.

"Reyes was in charge," he said. "Reyes had rules. Reyes always had rules. I thought most of them were stupid."

He didn't say anything about the sixth chair. He was sitting in it.

Cooper looked at the five gray shapes under their sheets. It was easy, now, to see people in them. A woman with a mug. A man with headphones he wasn't wearing. Somebody's tomatoes.

"How long ago?" he said.

"Long enough that nobody else remembers their names." Kane unfolded his hands and folded them again. "So I say them. Every day I'm awake. Somebody should."

Cooper thought of a farmhouse with nobody in it. A porch. Murph, old, in a hospital bed, a whole life he hadn't been there for. He kept that to himself. But he understood, then, why a man would sit on a dark bridge and talk to chairs. It wasn't madness. It was bookkeeping. You kept the accounts so the people didn't disappear.

"Your watch," Kane said after a while.

Cooper looked down. He hadn't realized he'd taken it out. It was in his palm, the cracked glass catching the amber light.

"It's cracked."

"I can see that." Kane looked at it with the kind of attention he gave to instruments. "There's a pair. I saw you look at your other wrist on the plain, as if something should be there."

Cooper turned the watch over. "My daughter has the other one."

"Had," Kane said quietly. Not unkindly.

Cooper closed his hand over the watch.

Kane let that go. He looked back out at the stars, and when he spoke again his voice was different. Lower. Careful.

"In your room," he said. "Your room made of time. You said you saw my ship."

"Yes."

"Did you see me?"

Cooper thought about lying. He was tired, and it was late, and it would have been easier. But the old man's face made lying feel like a cruelty.

"I saw your face," he said. "Just your face. Lit up green, from below."

Kane was very still.

"What did it look like?"

Cooper thought about it honestly. A half second in a dust storm that hadn't happened. A face in a light that hadn't been switched on yet.

"Afraid," he said.

Kane nodded, as if he had been told something he'd been waiting a long time to hear.

"Good," he said.

Cooper looked at him. "Good?"

"It means I was still paying attention." Kane folded his hands on the console. "The ones who aren't afraid are the ones who walk in alone."

He didn't explain. Cooper didn't ask him to. They stayed there a long time, the pilot and the old man, with the stars standing still in the windows and the machine at the helm saying nothing at all.

When Cooper finally went back to his bunk, he heard the voice start again behind him, low and even, picking up where it had left off.

"...and then the burn. You'd have liked that, Okafor. It was a good burn."

PART THREE

The Ride

Chapter Eleven

Eight Seconds

⁂

Six hours out, there was nothing to look at, and Brand couldn't stop looking.

Through the bridge windows the stars stood still. No world. No sun near enough to throw a shadow. Somewhere behind them Edmunds' world was one bright point among thousands, and she had already lost track of which. Ahead lay the heading CASE had chosen: a line on the display running into a patch of sky as empty as any other.

The bridge had settled into a shape. TARS at the helm, cabled to it and to CASE, his base locked to the deck, as still as the bulkheads. CASE beside him on his mount, navigation light blinking slow and steady. Cooper strapped into a jump seat beside the central console, the cracked watch lying in his palm. Kane at the array console to starboard, his eyes on a single amber trace that ran across his screen.

And Brand beside the Nest, one hand looped through a strap on the bulkhead, where she had been for most of an hour.

She was waiting for it to happen again. Once, climbing away from Edmunds, the Nest had pulsed in the same instant CASE's light blinked, and cells did not do that.

Early on, Cooper had asked who was doing what.

"Remember the drop," Kane said, without looking up from the array's plate. "Out here the pull isn't even. Leave it alone and it does to Lazarus what it did to the drop." His palm shifted on the plate. "My hand feels which way it's leaning. The array pulls the other way."

"CASE knows where the ground is smoothest," TARS said. "He picks the line, and the moment to burn. I pick which way we point."

"And me?" Cooper said.

"You're the spare," Kane said.

"Is it hard? Holding us?"

"Not yet," Kane said, and nothing more.

That had been hours ago. "How long since anything happened?" Cooper asked now.

"Six hours, eleven minutes," TARS said. "Five small trims. Nothing worth waking you for."

"I wasn't asleep."

"Your eyes were closed for forty minutes and your breathing changed. I am using the common definition."

Brand found she was waiting for a fifth voice that didn't come. For years every silence in every room she lived in had been half CASE's. He would have had something to say about a ship that hadn't moved in six hours: something flat and literal that would have made her laugh against her will. At the helm his light blinked, flying the ship, saying nothing. She looked at it a while, and then back at the Nest, because the Nest was the thing she could still do something about.

⁂

The Nest kept its own log, and the helm kept another, and the two clocks had never been introduced. That was the problem, and it was

one Brand could fix. If every flicker the Nest made were stamped against what the ship was doing in that same second, she would know which came first: the cells or the machine. Twelve meters of data cable and a junction under the helm console. She said as much out loud, mostly to herself.

Cooper was already unclipping the cover plate. "I've got the tools out," he said, and so they did it together.

He went in under the console on his back, anchored by a foot hooked under the rail, and she floated beside the opening with the cable reel and the parts tray and read him the pin layout off the Nest's spec sheet. He worked the way she remembered from the Endurance: fast, a little careless, talking the whole time, then suddenly very careful at exactly the right moment.

"You hum when you're concentrating," he said from under the console.

"I don't hum."

"You hummed through the whole wormhole. Romilly asked me to make you stop."

She was quiet a moment. "You noticed that."

"Hard not to." The crimper clicked.

"Blue to four," she said.

"Blue's on four."

"That's five."

A pause from under the console. "Were you always this bossy?"

"Were you this slow?"

He laughed, a short surprised sound, and moved the wire. Brand found she was nearly smiling, and didn't know what to do with her face, so she looked at the spec sheet until it passed.

They talked while he worked, about nothing that mattered, and she realized halfway through that this was the point and kept going anyway. She told him about the protein paste on Edmunds, and the greenhouse lettuce that never grew past the size of her thumb,

and about CASE, who had announced every single night that dinner was nutritionally adequate, with the exact same pause before *adequate*, every night for more than a year. She had started saying it along with him. He had never once acknowledged it. Cooper laughed at that too, from under the console, and held out his hand for the crimper without looking, and she put it in his palm.

It was restful, in a way she had forgotten anything could be: a job, a pair of hands, someone to hand things to.

"On the Endurance," she said, before she could decide not to, "when you chose—"

The crimper stopped. He slid out far enough to look up at her, and waited.

"Never mind," she said. "This spool's short."

The spare was in the locker by the door, four meters away. She pushed off too hard, because her mind was elsewhere, caught the spool on the way past, turned to come back, and realized halfway that she had misjudged it. She was coming in fast and high, straight at the open console and the sharp edge of the cover plate he'd left sticking out into the air.

Cooper came out from under the console in one motion and caught her.

One hand at her waist, one at her shoulder. Her momentum carried them both off the rail and they turned together, slowly, in the middle of the bridge, the spool between them, her hands on his chest where they had landed to stop herself. Neither of them had a hand on anything. There was nothing to hold. They hung there and turned, a quarter turn, a half.

She was very close to him. He smelled of solder and bad coffee. There was a fleck of sealant on his jaw he didn't know about. His eyes were on hers and they weren't joking, and she was aware, in the precise detached way she was aware of everything, that she had stopped breathing and wasn't in any hurry to start again.

It went on a second longer than it should have.

Then his eyes went past her, briefly, to the pocket of his jacket where she knew he kept the watch. She saw it come back into his face: Saturn, and a girl at a window. He let go of her gently, took the spool from between them, and held it up.

"Spool," he said.

"Spool," she agreed.

"Shall I log that?" TARS said from the helm.

"No," said Cooper.

"Logged."

At the array console Kane had not looked up. But his hands had gone still on the panel, and it was a while before they moved again.

Twenty minutes later the cable was in. A narrow strip ran along the bottom of the helm display: the Nest's readings, every tick of them stamped against the ship's clock. Cooper slid out, looked at the strip, and said, "Huh. The cable works," as though he had expected nothing of the kind.

Then he went back to his seat and took out the watch and held it in his palm without looking at it.

"What's out there for you?" Brand said. "At the end of CASE's line."

He turned the watch over once. "In the tesseract there was a door," he said. "I didn't open it. I think there's another one where we're going." He said it to the watch, not to her. "Murph's behind it. On her birthday."

She waited for him to laugh at himself. He didn't.

"That's a long way to go for a door," she said.

"It's the only one I've got."

She had argued once for a whole planet on less, and he had overruled her. She didn't say so. She went back to the Nest. For once, she couldn't have told anyone what she was thinking about while she watched it.

⁂

She felt it before she saw it.

A pressure behind her eyes, faint and sudden. A taste at the back of her tongue, sharp and metallic, as if she had bitten a coin. She frowned and blinked, and the Nest pulsed.

It was a single beat of green, brighter than she had ever seen it, bright enough to light her hand. Around the edge of the Nest's small display, the status ring that had glowed a steady, even green for all her time on Edmunds flared to full brightness. It held there a moment, a perfect circle. Then the light began to disappear, segment by segment, clockwise around the circle, steady as a second hand. She had rewritten half the software on that display herself, and in all that time that ring had never done anything but glow. Nobody had written this. The Nest was doing it on its own. Brand had stood in enough launch rooms to know a countdown when she saw one. She started counting with it without deciding to.

Eight. Seven.

"Cooper," she said. "Something's—"

Five. Four. He turned in his seat. Kane was still bent over his trace. Nobody else had seen it.

Two. One.

The ring ran empty, and the main engines fired.

No one had touched them. Every screen on the bridge flared at once, and the ship kicked hard beneath them.

Brand's whole body was flung against the strap and the strap held, barely, and her shoulder screamed. Across the bridge everything that wasn't fastened down went flying. The watch tore out of Cooper's palm and tumbled away end over end. Kane's harness tore loose and he went into the aft bulkhead. A tablet went past her face. Her other hand never left the Nest. She didn't decide that. It was simply where her hand was.

"That's not me!" Kane shouted from the bulkhead. "I never touched it!"

"Not by choice," TARS said.

Through the forward windows the stars swung as the ship turned onto its new line, and slowed, and stopped. The engines cut. Silence.

Cooper unstrapped and pushed off after his watch. He caught it near the ceiling, closed his hand on it, and held it against his chest for a second before he turned around.

"Then who fired that?" he said.

"CASE," TARS said. "Through me." He did not turn from the helm. "For the five small trims, he gave me warning. This time he gave me none. Nineteen seconds of main engine, eleven degrees off our line, and I had less than a second to choose the eleven."

"Away from what?" Brand said. "There was nothing there."

Kane had dragged himself back to the array console. The amber trace on his screen had gone wild, a number running up past anything it had shown since they left, and he looked at it as if it had insulted him.

"There is now," he said. "Behind us. Where we were."

They all turned to the aft windows.

The stars bent.

There was no other way to say it. Behind the ship, in the empty space it had occupied less than a minute before, the stars bowed. They swung toward each other and apart, smeared and folded, as if a huge invisible lens had been dragged across the sky. A ripple of darkness went through them, slow and wide and silent, and passed, and the stars snapped back to where they had been.

"A shear," Kane said quietly. "It looks like a gravitational wave, but it isn't one. Those come at the speed of light, a front as wide as the sky. You'd never see one coming. This one was narrow. It was

slow. It went through one place, the place we just left." He was still staring at the window. "That one would have torn us in half."

"I thought the gradient was the danger," Brand said.

"The gradient is the riverbed." Kane didn't look away from the glass. "Uneven ground, all the way down. CASE found us a quiet lane through it, and the array keeps us in the lane. A shear is a flood coming down the river." He paused. "You don't steer around a flood. You get out of its way."

Cooper looked at the empty patch of sky for a long moment. "So CASE moved us before it got here," he said. "Which means CASE knew it was coming."

"I do not know what he knew," TARS said. "I know he did not explain himself."

⁂

Cooper turned to her. She had known he would. She was still holding the Nest.

She made herself let go. Her fingers were stiff and her shoulder throbbed where the strap had caught her, and she ignored both and pulled up the strip they had wired an hour ago, and read it, and read it again.

This was what the cable was for. The Nest's log and the helm's log, side by side on one clock at last. And there it was, in a single line. The pulse, then eight seconds of nothing, then the burn.

She scrolled back. The five small trims were there too, from before the cable, and five faint flickers in the Nest's own log that she had taken for sensor noise. The cable had told her how far apart the two clocks ran, so she corrected the old log and laid it against the helm's. Every flicker was followed by a trim. Every one, eight seconds later. So far it had never been late.

"Eight seconds," she said.

Cooper had pulled himself over beside her. “What is?”

“The Nest pulses. Eight seconds later, CASE burns. Then the shear comes through where we were.” She heard how steady her voice was and was faintly surprised by it. “When we left Edmunds I saw the two of them blink together, and I didn’t know which one was talking to the other. The blink is together. The burn isn’t. It comes eight seconds later, every time. It isn’t CASE warning the embryos.” She looked at the Nest. “The embryos know first.”

Cooper looked at the Nest, then at her face. He didn’t ask the question she could see him holding, and she was grateful, because she had no answer. She was a biologist. She had spent her life on cells and the rules they obeyed. Cells did not know the future. Cells did not warn anyone of anything.

These ones had. Every time.

“Then that’s your job,” Cooper said. “Watch it. Call the count.”

The taste of metal was gone from her mouth. She hadn’t noticed it leave. She almost said something about it, and didn’t. After the day she’d had, it would have been strange if her body *didn’t* do odd things.

She told herself that, and believed it, mostly.

Across the bridge, Kane had not moved from his console. He had heard every word. He was not looking at the Nest.

⁂

An alarm sounded, flat and urgent. A single amber light on Kane’s console.

Kane turned to it as if grateful for something to do. “The manifold patch, aft,” he said. “That burn nearly tore it. One more like it and the patch goes, and we lose coolant to the core. Then we lose the core.”

Nobody had to ask what came after that.

"I'll fix it," Cooper said.

"That's my ship."

"It's the only one we've got."

Kane's jaw worked. Brand watched him want to argue, and watched him look at the amber light, and give up. "Third strut from the aft seam," he said. "It gives there first. It always has."

"TARS?" Cooper said.

"I am cabled into the helm," TARS said. "If I disconnect, his burns go through human hands, and hands are slow. I don't know yet whether slow is too slow."

"Then I go alone."

Kane opened his mouth. Brand knew what was supposed to come out of it. She had heard it at the airlock: *Nobody goes into a gradient field alone.* It didn't come. He closed his mouth and turned back to his console, and his hands found its edge and held on.

Cooper took a tool bag from the locker and pushed off toward the bridge door. At the frame he looked back. Not at Kane, not at TARS. At her, and at the Nest beside her.

"If it pulses," he said, "tell me."

"I will."

The door slid shut behind him with a soft hydraulic sigh, and the bridge was smaller without him in it.

Brand turned back to the Nest. Its ring glowed green. Across the bridge, Kane's hand left the console and went to the hatch control at the far edge of the panel, a plate she had never seen him touch, and rested there.

She saw it. She didn't think about it. She was watching the ring.

Chapter Twelve

The Manifold

⁂

The service corridor ran aft for sixty meters, a narrow throat of pipes and handrails lit by amber strips set into the deck. Cooper pulled himself along it hand over hand, a tool bag clipped to his belt, and the ship hummed around him, low and steady, the sound of something very large keeping itself alive.

He had always liked the inside of machines. Murph had gotten that from him. When she was seven she had taken apart the kitchen radio to find out where the voices lived, and he had come home to find her sitting on the floor in a ring of screws and tiny wires, furious that she couldn't put it back. He had helped her. It had taken them all night. In the morning it played again, faintly, with one small part left over that neither of them could place, and she had kept that part in a jar on her windowsill for years.

A sign drifted past. MANIFOLD ACCESS: AFT.

A bulkhead door, shut. He found the manual wheel.

"Don't," Kane said over the comm.

Cooper stopped. He looked up at the speaker grille.

"It's a door, Kane."

"Then be quick about it," Kane said after a moment. Cooper turned the wheel. The seal gave with a soft hiss and the door swung away from him, and he hauled himself through.

Behind him, the door swung shut.

He was in a narrow throat of pipes and handrails lit by amber strips. Ahead of him, a bulkhead door. A stenciled sign beside it: MANIFOLD ACCESS: AFT.

Cooper stopped moving.

He looked back. The door he had just come through was still closing, the last few centimeters of its swing, unhurried, the way it would have closed if he had come through it a moment ago. Which he had. It settled into its frame with a soft clunk. He looked forward again, and there it was. The same door. The same sign. The same long scuff on the handrail where somebody, years ago, had dragged a cart and taken off the paint.

Every pilot learns the same lesson sooner or later, usually in a cloud. Your body tells you you're level, and the instruments tell you you're rolling over, and you have about four seconds to decide which one to believe. They drill one answer into you until it's a reflex. Trust the instruments. Your body will lie to you.

He had no instruments here. Only his eyes. And his eyes were telling him that he had walked through a door and come out on the same side of it.

Ahead of him, a tool bag was floating in the air.

It turned slowly at head height, half a meter in front of the door. Canvas. A frayed strap. A screwdriver handle poking out of the top pocket. He knew that strap was frayed because he had noticed it on the bridge, taking the bag out of the locker, and thought he should find a new one.

He put his hand on his belt. His bag was there.

The floating bag drifted sideways, touched a coolant pipe, and was gone. It didn't bounce. It was simply there, and then not.

"Don't," Kane said over the comm.

The same voice. The same pitch. The same small catch of breath before the word, as if he had begun to say something else and stopped himself.

Cooper's skin went cold. He keyed the comm, and kept his voice even, the voice he used on the radio when the aircraft was doing something he did not want the tower to know about.

"Say again?"

A pause.

"I haven't said anything since you went through," Kane said.

Cooper looked at the door. He thought about turning back. He thought about the bag that was his and wasn't, and about the two of them, somewhere, in some version of this corridor, one of them always a step behind the other.

"Never mind," he said.

He turned the wheel, and went through, and did not look back.

⁂

This time the corridor ended where it should, at a round door stenciled MANIFOLD BAY.

The bay was a cramped cylinder packed with pipe and colder than the rest of the ship. Frost had grown across one wall in pale, feathered patches, and his breath hung in front of him. Through the middle of it all ran the manifold, a trunk of pipe as thick as a man, and over its seam lay Kane's patch: a long gray plate held down with a row of rivets and a bead of sealant, put there in a hurry, alone, while the ship was still shaking from Saturn.

It was weeping. Coolant seeped out along the edges of the plate in fine bright threads that broke into beads and drifted off into the cold, catching the light.

The plate groaned. A rivet sheared off with a crack and went ringing off the wall past his ear.

"Third strut from the aft seam," Cooper said to himself. He found the strut, wedged his boots against it, and pulled the fast-cure sealant gun from his bag.

"You are holding that backwards," TARS said.

"I know how to hold a sealant gun."

"Then you are doing it deliberately."

Cooper looked down at the gun. He turned it around.

He scraped the old sealant off the worst of the seam with the edge of a pry bar, short hard strokes, and beads of coolant floated into his face and stung his eyes, and he blinked them away and kept going.

"Cooper." Brand.

"Here."

"You've been gone four minutes."

His hands stopped. "Felt like two."

"Your biometrics agree with you," TARS said. "The clock does not."

"That's the gradient," Kane said over the comm. His voice was quiet. "Uneven gravity, uneven time. It doesn't always take minutes. Sometimes it takes more."

Cooper glanced back toward the door. Two minutes he had lived, and four that had passed. Somewhere between the door that finished its swing and the bag that wasn't his, two minutes of his life had gone missing, and he didn't know where, and he didn't think anyone on this ship knew either. He thought of Murph, of all the years that had passed for her while hours passed for him, and of how that had felt, at the end, like being robbed of something he could never get back. This was the same thing, only smaller. Only two minutes.

"Two," he said quietly. "Yeah."

He put the nozzle of the gun into the seam and squeezed. The sealant came out in a thick gray rope and the seam drank it in, and kept drinking, and the gap stayed open. The pressure behind the plate was pushing it back out as fast as he could lay it down.

"It pulsed," Brand said.

Everything in him went still.

"How long?"

"Eight. Seven."

He could hear her watching the status ring drain. There was no panic in her voice. There was something better than panic, something he would have trusted with his life on any flight he'd ever flown. Precision. Each number set down carefully, as if she were reading it off an instrument.

"Brand—"

"Six. Keep working."

He kept working. He laid another bead along the top edge of the plate, and the seam fought him, and coolant went into his eye and he swore and kept going half blind, his face wet and stinging.

"Five. Four."

It wasn't going to be enough. He could see that it wasn't. When the burn came, the whole weight of the ship would lean on this one plate, and it would tear straight up off the seam, and then the coolant would go, and then the core, and then everything. Brand and the Nest and the old man and TARS and the broken machine at the helm that had walked into a canyon and come out carrying the way home.

He dropped the gun and let it float, put his shoulder against the plate, and pushed. Everything he had. Boots locked on the strut, his whole body driving the plate down flat against the pipe, his teeth clenched so hard his jaw ached.

"Three."

The sealant under the plate squeezed out along the edges in a gray ribbon. He felt it begin to set under his shoulder, felt it go stiff and take hold. The plate shuddered against him.

It held.

"Two—"

He braced both boots on the strut and put his back to the wall and closed his eyes.

"One."

The engines roared. The burn slammed Cooper against the plate and held him there with his cheek pressed to the cold metal, and every rivet in the bay screamed, and coolant sprayed in a sheet across the far wall, and the great pipe bucked under him once.

The plate held.

The engines cut. In the sudden silence, beads of coolant drifted past his face, turning in the amber light.

"Cooper?" Brand said.

He breathed. He opened his eyes and looked at the patch. The sealant had set in a hard gray seam all the way around. No threads. No beads. He laid a hand on the plate and felt the manifold humming steady underneath it, the way you lay a hand on an engine cowling after it's brought you home.

"Held," he said.

"Good," TARS said. "The shear passed our old position on schedule."

Cooper stayed there a while with his hand on the plate. His shoulder ached. His eyes were raw. Somewhere behind him, he knew, a door might still be finishing a swing it had started minutes ago, and he did not want to think about that, so he thought about Murph instead, the way he always did when he was afraid: her small hands full of radio parts, her face furious and determined in the light from the kitchen window, the leftover piece in the jar on her sill.

He wondered if she had kept it. He wondered what had happened to it, after.

Then he collected the floating sealant gun, clipped it to his bag, and started back.

⁂

The corridor home was just a corridor. Sixty meters of pipe and handrail and amber light, and nothing in it looped or floated or spoke twice. He checked every door he passed anyway, and counted them, and the count came out right.

The bridge door at the end was shut. A red light glowed on the panel beside it: SEALED.

Cooper reached for the emergency breaker mounted beside the frame, the same kind he had pulled to get aboard this ship.

Nothing.

He looked at the panel. The breaker slot was empty. Someone had pulled the breaker out of its housing and taken it away.

The comm crackled.

"I learned from you," Kane said. His voice had nothing in it. No edge, no grief, none of the fear Cooper had been hearing in it for days. It was the voice of a man who had finished deciding.

And Cooper understood, all at once and far too late, why the old man hadn't argued harder about letting him go alone.

"Open the door, Kane."

No answer. Then, through the door, a deep metallic THUNK he felt through the frame, and behind it a rising sound he knew. He had heard it in a storage room on this ship with eleven seconds of air left in his chest.

Air, rushing out through a breach. The sound of air leaving a room and not coming back. Somebody had opened the bridge to space.

"Brand?"

"Cooper—the hatch—he's—" Her voice broke apart, and the line filled with roaring, and went to noise.

"I logged a fault on that breaker four hours ago," TARS said. "I did not know it mattered."

"Not now, TARS."

He already had the pry bar out. He jammed the flat end into the seam of the door, braced his boots against the frame, and threw his whole weight back.

The door gave six inches, grinding, and stuck.

Air screamed through the gap. Not out at him. Past him, into the bridge, toward whatever was open on the other side, and it took everything with it: the loose ends of his clothes, the strap of his bag, the breath in his mouth. It dragged at him, and his boots began to slide off the frame.

He wedged the bar crosswise in the gap and hauled himself into the opening sideways, shoulder first. The edge of the door bit into his ribs.

On the other side of that door was Brand, and the Nest, and the old man who had just tried to kill them all.

He kept going.

Chapter Thirteen

Vacuum

⁂

He came through onto the bridge sideways, and a torrent of escaping air took him.

It threw him down the length of the room before he understood where he was. He hit the aft rail with his hip and his ribs and grabbed it with both hands, and held on, and only then did he see it all at once, the way you see a crash site from the air: the whole of it, laid out, too much to take in.

The rear equipment hatch was grinding open on its motor, a black slot in the back wall of the bridge that grew a little wider every second, and beyond it there was nothing at all. No stars he could see. Just dark, pulling. Behind him the corridor's air poured through the door he had pried, and it was the only reason the bridge hadn't emptied.

Everything loose on the bridge was going to it. A clipboard went past him end over end. A coil of strap, unspooling as it flew. A wrench. The dust sheets tore off the five empty chairs one after another and streamed out through the hatch, gray and flapping, and were gone. The faded mug that had sat beside the first chair for however many years came loose last. It rolled off the console and

tumbled the length of the bridge, handle over base, and went out into the black without a sound.

Cooper's lungs were already burning.

At the rear bulkhead, right beside the open hatch, the Nest was tearing free of its mounts. He could see it going one bolt at a time: the frame shuddering, a bolt head working loose, the whole Nest leaning a little further toward the dark with every second. And wrapped around the Nest, holding it with her whole body, was Brand. One arm hooked through the frame. A strap twisted around her wrist and pulled so tight it had gone into the skin. Her boots were jammed under the foot of a console. Her face was white. Her eyes were shut.

At the helm, TARS stood braced against the pull with his base locked to the deck, one arm stretched out toward the Nest as far as it would go. It wasn't far enough. The cable from his frame to the helm and to CASE ran taut behind him. If he took one more step, it would pull free.

And at the array console to starboard, perfectly calm, sat Kane.

He had a pressure helmet on, sealed, an old scuffed one from some locker. He had fetched it before he opened the hatch. He had planned this. One of Kane's hands rested on the hatch control. Behind the visor his lips were moving, steadily, the same small shapes again and again. Counting. His eyes followed the mug out of the hatch. His lips stopped. Then they started again.

Then Cooper saw the rest of it. Kane had opened the hatch beside the Nest, and now he was waiting for it to go. If Brand went with it, he would let her.

"Close it!"

The scream of air tore the words out of Cooper's mouth. Kane heard them anyway. His voice came through the bridge speaker, thin and perfectly level.

"You don't understand what's coming for them."

Cooper went hand over hand along the rail toward Brand. Every grip was a decision. The air was going thin and strange in his mouth, and the edges of his vision had started to gray, the way they did in a high-G turn when the blood leaves your head. He knew that feeling. He knew how long you had once it started.

Over the speaker, under the roar, Kane's voice came again, mild as a man at a dinner table: "Not this time, Reyes. I'm doing it right this time."

"Cooper." TARS. "I can't reach her."

"Stay on the helm."

He got a hand on the Nest. Brand's eyes opened and found his.

"I'm not—letting go—"

"Then hold on. I've got you."

A bolt snapped. The Nest lurched a foot toward the hatch and Brand went with it and her wrist twisted in the strap and she cried out, high and short, and did not let go. Cooper got his other arm around the frame and his boots against the bulkhead and held, and the whole weight of the Nest and Brand pulled at him toward the dark.

On the Nest's display the green pulsed. The status ring began to drain.

Brand saw it. Somehow, with her face crushed against the casing and her wrist bleeding, she saw it.

"It pulsed! Eight seconds—"

"Burn's coming," Cooper said. "Hold on."

The ring was emptying. Cooper couldn't breathe. He held on and watched the green wedge shrink, because there was nothing else in the world to do.

On Kane's console the hatch control flickered.

Kane's hand jerked back from it as if it had burned him. The panel went dark under his palm, and then lit up again, every light on it, all at once, and none of it was his doing.

The hatch motor reversed, and the hatch slammed shut.

The scream died. Air came back through the pried door from the rest of the ship with a long, ragged howl, and somewhere behind the bulkheads the emergency tanks hissed open to make up the loss. Everything that had been flying kept flying, slower now, and fetched up against the aft wall one piece at a time, and hung there. Cooper sucked in a breath so big it hurt. Brand was gasping against the Nest.

Kane sat staring at the control that no longer answered him.

"No," he said.

The ring hit empty. The engines fired.

The burn threw them all aft. Cooper and Brand slammed against the Nest together and he felt her head knock his chin. Kane was flung out of his seat and caught the console's edge with one hand, and Cooper heard his helmet crack against it.

The engines cut.

Silence. Dust floating. And at the rear of the bridge, held between Cooper and Brand, the Nest glowing its steady, untouched green.

"Atmosphere restored," TARS said. "Nobody consulted me about the hatch, either. The close command came in through the helm." A pause. "Through CASE."

⁂

Cooper let go of the Nest and pushed off toward Kane.

The old man didn't fight. He hung by one hand from the console, still looking at the dead hatch control, and behind the cracked visor his lips were moving again.

"His heart rate is fifty-two," TARS said.

Cooper found the helmet seals and ripped them open and pulled it off, and Kane's thin white hair floated up loose around his head,

and his eyes came slowly back from wherever they had been and found Cooper's face.

"What are you counting?"

"I counted them out loud last time," Kane said. "I'm not doing it again."

Brand had not moved from the Nest. Her wrist was still tangled in the strap and the strap was dark with blood. She had heard.

"Kane."

He looked at her. And his face changed. Cooper saw it. All the calm went out of it and something else came in, something gentle and terribly tired.

"Everything that opens," Kane said, "opens around something." He nodded at her hand, still on the Nest. "Look at what you're holding."

Brand looked down at her hand on the Nest. She took it away. Then she put it back.

"Brand," Cooper said. "Help me."

⁂

They took him down the service corridor between them, one on each arm. He came without a struggle. He floated along between them, calm, his hands loose.

He was murmuring. The same quiet rhythm Cooper had heard through the bridge door, his first day on this ship.

"Reyes. Okafor. Lindqvist. Melanson. Dunn."

A pause. The kind you leave for an answer.

"Brand," he said.

Brand's grip on his arm faltered.

"Cooper."

Cooper stopped. Kane stopped with him and waited, patient.

"TARS."

A longer pause. Kane lifted his head.

"All present."

"We're not your crew, Kane," Cooper said. "We're alive." His voice came out rougher than he meant.

"So were they."

⁂

The pressure cabin was a plain steel door set into a wall twice as thick as any other on the ship, with a small square window and a heavy manual wheel. Stenciled on the frame: SEPARATE AIR. MANUAL ONLY.

"I built this room for the day something went wrong," Kane said.

Cooper looked at the wheel. At the thick scarred door. At the scratches on the inside of the frame that could have been anything.

"You built it for this."

"For something like it."

He let them guide him in. He turned and sat on the narrow bunk and folded his hands in his lap. In the cabin's cold white light he looked very old, and very small, and not at all like a man who had just opened a ship to the dark.

Brand stood in the doorway. Her wrist hung at her side. She didn't seem to notice it.

"Why?" she said.

Kane looked at her. When he answered, it wasn't to her. It was to the floor, or to something past it.

"The embryos," he said. "I was trying to get them off this ship. Out the hatch, as far from us as they would go, before it came for them and took us too. You would never have let them go any other way."

"It doesn't take what's near it," he went on, quietly. "It takes what it's for. I've seen it do that once. I didn't want to see it again."

He looked up at Brand then, and his eyes were wet. "I'm sorry about your wrist."

Brand said nothing.

Cooper put his hand on the edge of the door.

"If you need me," Kane said.

Brand stopped.

"Knock," Kane said.

Brand flinched as if he'd struck her. Cooper saw her face and filed it away with everything else about this ship he didn't understand.

She closed the door. Cooper spun the wheel until the bolts thunked home.

Through the little window, Kane sat on the bunk with his hands folded and his lips moving.

⁂

Outside, Lazarus coasted.

Its engines were dark. It hung in the black with one long strip of bridge windows lit, a small bright splinter in an ocean that went on forever in every direction.

⁂

Later, the bridge was tidy again.

They had gathered what was left and stowed it. The five chairs stood bare now, no sheets, just five empty seats around a console with a pale circle on its surface where a mug used to sit. CASE's navigation light blinked at the helm. TARS stood beside it.

Brand sat on the deck beside the Nest with her wrist wrapped in a strip of clean cloth. She had not let Cooper look at it properly.

Cooper was checking the bolts on the Nest's mounts. All of them. One by one. He had replaced the broken one and torqued it and now he was going down the line with the wrench, testing each one, and then starting again at the top.

"You have checked that bolt four times," TARS said.

"Five."

"Five."

The corner of Cooper's mouth moved. He made it stop. He felt TARS notice. TARS, for once, kept it to himself.

"Did you know?" Brand said.

Cooper kept working. "That he'd try this? No."

"That's not what I asked."

He kept working. He didn't look up. Down the corridor, behind a thick steel door, an old man was sitting on a bunk saying five names, and now eight. Cooper had known that face since before he ever set foot on this ship, and he had told no one, and now there was blood on Brand's wrist.

He looked toward the corridor. Toward the cabin.

"I saw his face in the tesseract," he said. "That's all. Not what he does."

Brand didn't push. She looked down at her hand, resting on the Nest.

"Viability?"

"Unchanged," TARS said.

"All of them?"

"All of them."

The Nest pulsed, and Brand's hand tightened on it.

"Eight," she said.

Cooper dropped the wrench and grabbed for a strap.

"Cooper," TARS said. He had the camera feed from the pressure cabin up on a small monitor at the helm. On it, Kane sat on his bunk

with his hands folded in his lap. One of his fingers lifted. Then the next. Then the next. One a second.

"He's counting too," TARS said.

Nothing in that room could have told him when to start.

Chapter Fourteen

The Glass

⁂

Brand stopped counting out loud somewhere around three. The burn came on one, and the shear went through where they had been, and nobody remarked on it.

What stayed with her was the other thing. A pressure at the back of her eyes, faint, a second before the status ring flared, and gone again now that the burn was over. She noted the time. Noting things was what she did when she didn't want to feel them.

"One other thing," TARS said. "Kane's heart rate jumped at the pulse. Not after it. Before it."

"He's in the cabin," Brand said. "He can't see the Nest from there."

"No. Only my monitor can see him." TARS paused. "He was looking at the wall when it happened. At the wall in the direction of this bridge."

"So how did he know?" Cooper said.

"I would also like to know that."

Nobody said anything after that. Brand found she was looking down the corridor toward the pressure cabin, and that Cooper was too.

⁂

At twenty-two hundred the ship went to night cycle, and the corridors went dim.

She went alone. She told herself it was because Cooper had the bolts to finish and TARS couldn't leave the helm, and that was true. It was also true that she could not make the two Kanes fit: the old man on the cabin bunk with wet eyes, sorry about her wrist, and the man in the helmet with his hand on the hatch control, counting. She had been watching the ring when he did it. By the time she looked up he had the helmet on and his hand on the control, and the hatch was already moving, and the only thing she could reach was the Nest. When two observations didn't fit, you went and took a third. That was the whole of science. She held on to that.

The amber strips burned at a third of their daytime strength. They lit the deck and not much else, so that the pipes overhead ran off into a dark that had no ceiling. Her wrist throbbed inside its wrapping in time with her pulse. The ship made its night sounds: the long creak of the hull adjusting to its own cold, the tick of something cooling, the hum under everything that she had stopped hearing hours ago and heard again now.

Halfway down, something knocked.

Two knocks, close together. A pause. A third.

It came from the wall beside her head. Not the deck, not the pipes. The wall, at the height of a hand.

Brand stopped moving. She hung there with one hand on the rail and did not breathe.

She knew that knock. She had come up out of the cold toward it, on Edmunds, through the lid of a sleep chamber, with no one alive for light-years. Two, then one. Patient.

The corridor was empty in both directions. There was nothing she knew of on the other side of that wall but a coolant run and then the hull and then nothing at all.

She put her palm to the panel. It was cold. Nothing moved under it.

"TARS." Her voice came out level, which surprised her. "Is anyone aft of the bridge besides Kane?"

"No one. Kane is on his bunk. Cooper is here, at the Nest's mounts. Is something wrong?"

The panel under her hand was cold and still. Pipes knocked. Hulls knocked. Metal contracted in the cold and made sounds that seemed like anything you were afraid of. She had a very good list of things it could be, and every item on the list was ordinary.

"No," she said. "Just checking."

She took her hand off the wall. Her fingers were shaking. She made them stop, the way she had made her hands stop at the bench her whole working life: one breath in, hold, out, a procedure like any other. Then she went on toward the cabin, and she did not look back at the wall, and she did not tell anyone.

⁂

The cabin was the only bright thing at the end of the corridor.

Its little square window glowed white in the dark, the light inside it hard and clinical, the way a specimen is lit. Below the window was a narrow pass-through slot, shut. The door was as they had left it, thick and scarred, the wheel spun tight.

Kane was already at the glass.

Not on the bunk. At the window, close, his face a hand's width from the other side, lit from below by the cabin strip so that his eyes sat in shadow. He was very still. He looked as if he had come to the glass the moment the wall knocked.

She had not knocked. She had meant to knock twice, plainly, the way you knock on a colleague's office door. She hadn't had the chance.

"You came," he said.

"You said knock." She heard how small that sounded. "I didn't."

"No," Kane said. "Something else did."

The cold went through her all at once, from the crown of her head to her hands.

He couldn't have heard it. The cabin had separate air and walls twice as thick as any on the ship. The knock had been far back down a dark corridor, in a wall with nothing behind it. He could not have heard it.

She did not answer him. She made herself hold his eyes instead, and found her own reflection in the glass, faint, laid over his face, so that for a moment she could not tell where she stopped and he began.

"I came to ask you some questions," she said.

"I know." His eyes went to her wrapped wrist. "Is it broken?"

"No."

"Good." He said it as if it mattered to him, which was the worst part. "I'm sorry about the hatch."

"You opened it on me."

"I opened it on the Nest. You were holding on."

"That's not better."

"No. It isn't." He didn't look away. "I'm sorry about the hatch. I'm not sorry about the warning."

"What warning?"

He studied her through the glass the way she had seen doctors study an X-ray. Without hurry.

"I'll tell you," he said. "But you've been carrying something since your planet. Put it down first."

"That isn't how this works."

"It is tonight."

She should have walked away. She knew that, in the clean, distant way she knew the boiling point of nitrogen. She stayed where she was.

"It starts behind the eyes," Kane said quietly. "Doesn't it? A pressure. Then a taste. Like a coin on your tongue. And then the light."

Brand didn't move. She couldn't have.

She had told no one, not Cooper, not TARS. She had a list of explanations for it, every one of them ordinary, and she had shown the list to no one, and this man had been locked in a steel room on the other side of the ship while she made it.

"You've been feeling it since your planet," he said. "Every time. A second before the ring."

"You can't know that."

"I feel it here." He tapped his chest, once, over his heart. "Earlier than you. It's been coming earlier every hour." He waited. "Your turn."

She could give him nothing. She could turn around. Instead she heard herself say it, because some part of her needed to see what he would do with it.

"A knock woke me," she said. "On Edmunds. After eleven years asleep. Two knocks, and then one."

Something moved in his face. Not surprise. Recognition. And then something that looked terribly like pity.

"Then you know," he said. "It isn't asking to be let in."

Brand looked away first.

"It comes before the Nest does," Kane said. "Every time. And it's getting stronger."

"What is?"

He looked at her, and she watched him decide something. Watched him weigh what it would cost to tell her against what

it would cost not to, and find both prices too high, and choose anyway.

"The opening," he said. "It forms around whatever's at its center. And when it opens, it takes what's there." His voice didn't rise. It got lower. "It took them. My crew. The night it took them, that same fifth number was on every screen on this ship. And now it's forming around what you're holding, Amelia."

Her good hand closed, as if the Nest were in it.

"You don't know that."

"I know it took them."

"That's not the same thing."

"No."

She made herself think. One data point. A man's account of a single event, years old, filtered through grief and guilt and a long time alone. Unverifiable. Possibly delusional. And set against it: eight seconds, every time, never late. Cells that kept time with a machine when cells could not keep time with anything. Tools that tilted on their hooks to point at a corner of a room. A knock in a wall with nothing behind it. She did not have a theory. She had a pile of observations that all leaned the same direction, like the corrections on her drift map, and she did not like where they were leaning.

She looked at Kane, and for the first time since she'd known him, he looked afraid.

"When it gets close," he said, "I won't be able to sit here."

"Kane—"

"Don't let me reach the array."

"The door's locked," she said.

"Locks won't matter when it's close."

"Then stay put."

He put his palm flat against the glass. It covered her reflected face exactly. He looked at her with an expression she had seen once before, on her father's face, in the last video message he sent her

before the long silence: a man who knew something terrible and had decided you were old enough to hear it.

"I didn't," Kane said. "Last time."

He let it sit.

Brand played it back the way she would play back a recording, word by word. *I didn't. Last time.* She thought of the airlock at dawn, the patch kit, the smooth worn words. *I was asleep. The knocking woke me.*

"You said you were asleep," she said.

He didn't answer.

He reached into the front of his shirt and brought out the small recorder, the one she had seen in his hand at the airlock, the one with the warm tinny voice of a dead woman telling him he was late for dinner. He turned it over in his fingers. Then he slid open the pass-through slot below the window and set it inside.

"Keep this," he said.

"Why?"

"Not for me."

She did not want to put her hand in that slot. She did it anyway. The recorder sat in the little steel tray, small and scuffed, its casing worn smooth at the corners from years of handling. It was warm from his body.

When she looked up again, the window was empty.

For one long second she could not find him. Then she saw him, back on the bunk, hands folded in his lap, eyes on the wall, as if he had been sitting there the whole time and never come to the glass at all.

"Kane."

Nothing. His lips had begun to move again. Counting.

She closed the slot. She did not turn her back on the window until she had to.

⁂

She didn't go back to the bridge right away.

She stopped where the amber strips gave way to a stretch of dark pipe, the place where the wall had knocked, and waited. Nothing came. The hull creaked, and ticked, and hummed, and that was all. She found she had been holding her breath, and let it go.

She held the recorder in her open hand and looked at it. It had a play button on the side, worn almost flat. She knew what was on it. She had heard the first few seconds of it, at the airlock. Whatever else was on it, he had carried it through the wormhole, and kept it in his shirt, and handed it to her through a slot in a locked door.

Not for me.

Her thumb found the button. It rested there.

She thought about what she would hear, here, in the dark, with the Nest pulsing every hour and the old man counting behind a steel door. She thought about her father, and the lie he had told for the good of everyone, and how finding out had not made anything better.

She took her thumb off the button.

She put the recorder in the breast pocket of her coat and fastened the flap over it, and went on toward the bridge, toward the light, toward the Nest and the ring she had to watch. It sat against her heart the whole way, a small hard weight.

Cooper looked up from the mounts when she came in. "Anything?"

"He's frightened," she said.

It was true. She didn't tell him the rest, that so was she.

Chapter Fifteen

Heavy

⁂

Cooper was halfway down the service corridor with a coffee bulb clipped to his belt when the lights dimmed.

He stopped. They came back up. Then they dimmed again, slower this time, all the way down the length of the corridor, section by section, as if something were walking through the ship turning them down.

He put his hand on the bulkhead. The metal was humming. Not the ship's normal hum, the one he no longer noticed. Something deeper, under it, that he felt in the bones of his wrist.

"TARS."

"Cooper." A pause on the comm. TARS didn't pause like that. "The pressure cabin door is open."

"Open. Who opened it?"

"I don't know. I was reading the Nest's display for four seconds. When I checked the cabin monitor again, the bunk was empty and the door was standing open." Another pause. "Either there is a release on his side that he never told anyone about, or—" TARS stopped. "There must be a release on his side. He built the room."

"Where is he now?"

"I don't know that either."

Cooper had never heard TARS say that twice in a row.

"There are cameras on the bridge, in the main corridor, in the manifold bay and in the cabin," TARS said. "He is not on any of them. There are spaces on this ship I have no cameras in. I am beginning to think there are spaces on this ship I did not know existed."

The lights went down another step. The corridor ahead of Cooper narrowed to a tunnel of dull amber, and beyond the next bend it was simply dark.

"Brand," he said into the comm, low. "Where are you?"

No answer. Then, very quietly, her voice, as if she didn't want to be heard by someone close: "Corridor. Outside the cabin. I came back to check on him. Cooper, the lights are out down here."

"Stay where you are. Is he there?"

"I don't—" She stopped.

Over the comm he heard it too. Kane's voice, quiet and courteous, coming out of the dark somewhere near her.

"Brand. Step back."

"Kane." Her voice was steady, and it cost her. He could hear exactly what it cost her. "Go back to the cabin."

Silence. A long one.

"Cooper." Brand, close to the comm now, breathing fast. "He went around me. He was right there and I didn't see him. I didn't see him go." Cooper had never heard her sound like that. "He's going to the bridge."

He listened.

The hum. His own breathing. And then, from somewhere behind the panels at his shoulder, a sound he knew from every ladder he had ever climbed in the dark: the soft, unhurried tick of a hand closing on a rung, and letting go, and closing on the next. Coming from the cabin end. Past him, close enough to touch through the

metal. Going on behind him, the way he had come. Toward the bridge.

Beside his shoulder, a panel he had passed a dozen times stood open a finger's width. He had never known it was a panel. Cold air breathed out of the gap.

Cooper turned and went the other way, back the way he'd come, because the bridge was behind him, and he was faster than an old man. He knew that. He knew it the whole way, hauling himself hand over hand along the rail through the dark as fast as his arms would go, past panels that might or might not be doors, and the corridor was longer than it had ever been.

He came through the bridge door and Kane was already there.

He was at the array console with his feet anchored under the rail. And as Cooper watched, his hand went to a single switch at the center of the panel, under a red hinged guard, and flipped the guard up.

"Kane. Hands off."

The old man didn't look at him.

"Cooper," TARS said from the helm. "That switch collapses the gradient we're riding."

"Meaning?"

"The navigation unit loses the route. We stop. Out here, with nothing to steer by, everything aboard dies. The Nest too."

Kane's hand rested on the switch. His face was gray and wet. When he spoke, it wasn't to any of them. It was to the air in front of him.

"It's close," he said. "I can feel it."

"You'll kill her," Cooper said. "You'll kill all of them."

"It took five people." Kane's voice cracked down the middle. "I'm not giving it a box full of children. Dead is better than taken."

Cooper launched himself across the bridge.

Kane flipped a second switch, the limit override, and laid his other palm flat on the array panel.

The air around the console went heavy.

Cooper dropped out of the air in the middle of the bridge as if someone had cut a string. He hit the deck flat on his chest and the breath went out of him. A pen fell beside his face and struck the deck plate with a crack. All around him, dust that had been floating since the last burn came down out of the air all at once.

He tried to push up. His arms shook. He got an inch. Then his own body, ten or twelve times heavier than it had any right to be, drove him back down, and the deck plates creaked under his ribs.

It was a circle. He could see the edge of it: a wide disc of deck in front of the array console where everything was falling, and beyond it, a meter away, dust still floating lazily. Kane stood behind the console just outside the edge, weightless, his hand still on the panel.

"Stay there," Kane said. "Please."

Cooper couldn't answer. It was all he could do to breathe. He had pulled nine G's once, in a centrifuge, for fifteen seconds, and come out of it seeing in black and white. This was worse, because it didn't stop.

Brand came through the bridge door behind him. He heard her start across.

"Don't come in, Amelia," Kane said gently. "It's heavy in here."

She stopped at the edge of the circle. Cooper could see her boots. An arm's length in front of her, dust was falling. Behind her, it floated.

Kane's hand moved back toward the switch. On the deck, Cooper's vision had gone to a gray tunnel. His next breath didn't come all the way in.

At the helm, TARS's frame swung from Cooper on the deck, to Kane's hand, to the cable that ran from his own frame into the helm, the cable that was flying the ship.

He pulled it out.

On the helm display a red line began to flash: NAVIGATION: NO PILOT. The route on the screen flickered. Somewhere in the ship an alarm began, flat and steady.

TARS stepped off the helm and walked into the circle.

The weight hit him all at once. Cooper saw it from the deck. TARS's whole frame dropped a foot, and his segments screamed against each other, a sound of metal grinding on metal. One of his joints locked with a bang.

He dragged the locked limb forward and took another step.

A panel on his side buckled inward. Sparks spat out of the breach and fell straight down, heavy, and burned small black marks into the deck.

He kept coming.

Don't, Cooper thought. He couldn't say it. *TARS. Don't.*

Kane's fingers found the switch.

TARS reached the console.

"Doctor," he said. "Step away."

Kane looked at him. Kane's face held no fear and no anger. If anything, it looked apologetic.

His hand pressed on the switch. It started to give.

TARS struck.

One flat blow to Kane's shoulder, meant only to knock him off the switch. But the arm came down through the heavy field, and the field took hold of it. Cooper watched it happen and couldn't stop it. The arm gathered weight as it fell, ten times its weight, twelve, until it wasn't a push anymore.

It was far too much force.

Kane was thrown sideways into the edge of the console. There was a short, terrible crack, more than one bone at once. He folded around it and fell into the heavy air.

The switch was half pressed. It had not thrown.

The heavy air let go.

Cooper came up off the deck with a gasp, and the weight lifted off him all at once, and the dust rose back up around him on the draft from the vents, and the pen bounced lightly off the plate beside his hand and kept going.

Kane lay at the foot of the array console. He didn't float yet. He lay on his back with his glasses crooked on his face, looking up. Above him the steel lip of the console was bent where he had struck it. His shirt sat wrong over his left side, sunk in where it shouldn't be, and his breath came in short, wet pulls that didn't fill him.

He was looking at TARS.

And Cooper saw his face, and it was not the face from the tesseract. It wasn't afraid. It was something he had never seen on Kane in all the days he had known him. Relief. The face of a man who has been carrying something heavy for a very long way, and has finally been allowed to set it down.

"Thank you, TARS," Kane said.

His eyes stayed on TARS a moment longer. Then they were still.

Slowly, weightless now, stirred by the air from the vents, his body began to lift away from the deck.

TARS stood over him. One arm hung dead at his side. Smoke curled from the buckled panel on his frame.

"I meant gently," he said.

His lights went out. His frame tipped and came to rest against the console, dark.

⁂

Silence.

Brand pushed off from the edge of the circle and caught Kane's body before it could drift. She held him against her, one arm around

his chest, the way you hold someone who has fallen asleep on your shoulder.

Cooper pulled himself up by the edge of the console. His ribs were on fire. He looked at TARS, dark and leaning. He looked at Kane.

The old man's glasses had worked loose from his face. They drifted off his nose and turned slowly in the air between them, catching the light.

Cooper caught them. He held them a moment. There was no one to push them back onto.

He folded them carefully and slid them into the breast pocket of Kane's cardigan.

Brand closed Kane's eyes with two fingers. Her hand was shaking. She left it on his face a moment after.

The ship hummed around them. The alarm went on and on, flat and steady: NO PILOT, NO PILOT.

At the rear bulkhead, the green status ring on the Nest flared full.

"Cooper," Brand said. Her voice was very quiet. "It pulsed."

Cooper looked at the helm. The red line flashing. TARS dark beside it, his cable hanging loose. Nobody flying the ship.

The ring began to drain.

"Eight," Brand said.

He shoved off the console and flew the length of the bridge. He hit the pilot's seat hard enough to bruise, got the strap across his chest, and put his hand on the manual throttle. It had been a long time since he had flown anything this big with his own hands. It didn't matter. Hands remember.

On the helm display the route was still there, a thin line running ahead into the dark. A heading marker blinked at the angle the navigation unit wanted for the burn.

He couldn't turn to see the ring. He didn't need to. Brand's voice was the instrument.

"Seven. Six."

He worked the attitude controls. The ship's nose swung toward the marker, slow and heavy, and went past it. He brought it back. Too far. Back again.

"Five. Four."

The nose settled on the marker and stayed there.

"Three. Two—"

His hand closed on the throttle.

"One."

He fired.

The engines roared. The burn shoved everything aft. Behind him, he knew, Brand was braced against the rear bulkhead, holding Kane against her with one arm and the Nest with the other, refusing to let go of either.

The engines cut. Cooper sagged in the seat.

Behind him, Brand was looking at the Nest's display. He heard her breathing. She sounded like someone who had been running.

"They're getting closer together," she said.

"How close?"

"I don't know yet."

Cooper turned in the seat and looked at TARS, dark and broken against the console, one arm hanging, his side split open. Then at the helm, and the empty socket where his cable should be.

"Then I don't have long," he said.

Chapter Sixteen

Repair

⁂

He flew two more burns by hand before he could even start on TARS.

Somewhere between the burns the ship came out of night cycle. The corridor lights climbed back to white and the bridge filled with ordinary light again, and he didn't notice when it happened, only that it had.

Between them he got TARS down onto the deck beside the helm, which was harder than it sounded. Weightless, TARS was easy to move and impossible to steer, all corners and dead mass, and every time Cooper got him lined up the ship would lean into another correction and he'd drift. In the end Cooper strapped him to the deck with cargo webbing at four points, like an engine on a flatbed, and knelt beside him, and opened him up.

It was bad.

The heavy field had done things to TARS that Cooper had never seen done to a machine. The buckled panel on his side had split a seam a hand's width long, and behind it the boards were scorched black. Whole runs of cable had fused to each other where the sparks had fallen back in. The arm he had used to strike Kane had locked

at its pivot and wouldn't come free. Cooper tried for ten minutes, gently and then not gently, and gave up on it. The arm was gone.

The rest of him he could maybe save.

He clipped a work light to his collar so his hands would be free and went in. He had never been trained on TARS. Hardly anyone alive had. The people who built the machines were long dead. But he had spent months on the Endurance beside TARS, and helped put him back together on Cooper Station piece by piece, and he knew engines, and he knew wiring, and the logic of how a thing was put together was the same whether it was a truck or a tractor or a machine that had gone into a black hole ahead of him. You found where the power came in. You followed it until it stopped. You fixed the place where it stopped.

At the rear of the bridge, Brand had strapped Kane's body to the bulkhead beside the Nest and covered him with a dust sheet she'd found tangled in a locker. She sat beside the Nest now with her knees drawn up and her wrapped wrist in her lap, watching the status ring. Twice more she counted, and twice he left the tools for the helm and came back. She hadn't said anything else in an hour. He didn't ask her to.

He soldered a connection. He tested it. Nothing.

"Come on."

He found the next break and followed it. The bridge was quiet. Just the hum of the ship, and the faint tick of the soldering iron, and at the back of the bridge the low whir of the Nest's cryocooler, keeping the embryos cold.

He didn't decide to start talking. He just found that he was.

"You want to know what I saw," he said. "In the tesseract."

Nothing from TARS.

"You were on the radio. You heard most of it. But I never told you this part." He stripped a wire with his teeth and spat out the insulation. "Nobody else knows."

He worked for a while without saying anything. It was easier talking to TARS like this, he realized. TARS dark. TARS not turned toward him. It was like talking in a truck at night with somebody else driving, where nobody has to see anybody's face.

"There's a room," he said. "Not a room. It's her room. Every moment of it, stacked up on top of each other like shelves, all at once. I could see all of it. The day I left. The day she grew up. Her at ten, at the window, refusing to come down and say goodbye. Her grown, back in that room, holding my watch. Her at fifteen, not talking to me, and I wasn't even there for that, and I saw it anyway."

He set the soldering iron down. His hands weren't steady, and he needed them to be.

"And the door," he said. "You heard me tell Brand about it. I didn't tell her the rest. I could have opened it, last time. I think I could have. And I didn't, because there wasn't time, and because I didn't know what it was." He looked at the dark boards in front of him. "She's behind it."

He picked up the soldering iron again.

A long time passed. He closed two more breaks. He found a third and swore at it.

"I was in there an hour," he said. "Maybe."

"Fourteen minutes."

Cooper froze.

TARS's lights were still dark, not one segment lit. Only the voice, coming from somewhere inside the ruined frame, a little rougher than usual, a little slower.

"I was on the radio," TARS said. "I timed it."

Cooper didn't move for a moment. Then he sat back on his heels.

"How long have you been awake?"

"Since 'Nobody else knows.' I'm always listening. It's most of what I do."

And Cooper laughed. He couldn't help it. It came out of him half breath and half something else, and it hurt his ribs, and he pressed the back of his wrist against his eyes for a second until it passed.

"Hold still," he said.

"I am strapped to the deck in four places."

"Then hold still harder."

He closed the last connection.

⁂

TARS's lights came up one segment at a time.

They came up flickering, block by block. His frame shuddered against the webbing. The dead arm twitched once at its pivot and didn't move again.

The first thing he said was, "Doctor Kane."

"He's gone," Cooper said.

TARS was quiet for a long moment. "I know," he said. "I was there. I wanted to hear it from someone else."

On TARS's display, a string of diagnostic codes cycled too fast to read, and then settled.

HUMOR SETTING: 100.

"Humor setting," TARS said. "One hundred. Factory default." A pause, precisely timed. "Diagnostics complete. One working arm. One sense of humor, at full strength. I consider that a fair trade." Another pause. "I'd shake on it, but."

Cooper laughed. He didn't mean to. It came up out of him like something breaking, too loud in the quiet bridge, and his eyes stung, and he kept laughing anyway, because it was TARS, because TARS was talking, because hours ago he had thought he would never hear that voice again.

Cooper looked at the readout. One hundred. Where TARS had started, before anybody ever turned him down. Before Cooper had

turned him down, on the way up to the Endurance a lifetime ago, and then again on the Ranger, all the way to nothing.

His hand went to the panel. His thumb found the setting and rested on it.

"You could have turned me down while I was dark," TARS said. "I would never have known."

"I'd have known."

TARS was quiet a moment. "Leave it where it is, then."

Cooper took his hand away.

TARS stayed turned toward him. He didn't say anything more. Cooper had the strangest feeling that if TARS had a face, it would have been very carefully doing nothing at all.

He unbuckled the webbing, all four points. He found another length of it in the locker and used it to strap TARS's dead arm against his frame so it wouldn't catch on anything, and pulled it tight, and tied it off with a knot his father had taught him for hay bales. TARS let him.

"Why'd he thank you?" Cooper said.

TARS didn't answer right away. Cooper had asked a lot of questions over the years that TARS answered before he finished asking. This wasn't one of them.

"He asked Brand not to let him reach the array," TARS said. "He reached it. I didn't let him."

Cooper took that in. He looked back at the rear bulkhead, at the shape under the dust sheet, and at Brand sitting beside it with her hand on the Nest. She had heard. She didn't look up.

Cooper was quiet a long moment.

"Thank you," Cooper said.

It was the first time he had said it. Not on the Ranger. Not after the storage room with eleven seconds of air left, not after the jump and the clamps, not after the tumble. He had thought it every time.

He had never once said it, and he knew exactly why, and so did TARS.

"You're welcome," TARS said.

"You don't have to log them," Cooper said. "The jokes."

"I wasn't going to."

The corner of Cooper's mouth went up. This time he let it.

⁂

TARS was quiet for a while. Then:

"On the Ranger. Why zero?"

Cooper didn't answer at first. He picked up the soldering iron, saw there was nothing left to solder, and put it down again.

He thought about the black hole, and TARS's craft dropping away first into the light, TARS calm on the radio, saying he'd be waiting on the far side. In the weeks after, in a hospital bed on Cooper Station, it was that moment Cooper kept coming back to. More than Gargantua. More than the tesseract.

"Last time," he said, "you went in first. Into the black hole. For me."

He was quiet for a while. "I didn't want to need anybody that much again. Not after Murph. Not after all of it. Equipment doesn't go into black holes for you. Equipment doesn't make you watch it go." He looked down at his hands. "So I made you equipment."

TARS didn't answer.

After a while, he said: "For the record, outside the bridge door, when I told you about the breaker, you said, 'Not now, TARS.'"

"I know," Cooper said.

"Next time I find a missing breaker," TARS said, "I'm going to interrupt you."

"Do that," Cooper said.

⁂

TARS pushed himself upright with his good arm. He did it one joint at a time, and the frame creaked in a way it had never creaked before. When he was standing he pivoted toward the helm, toward the route still glowing on the display, and the dark ahead.

"Last time, in there," he said, "there were more moments than anyone could search. I asked how you'd find her." He turned toward Cooper. "You said love."

Cooper was quiet for a long time.

He remembered saying it. He remembered how stupid it had sounded, coming out of his own mouth in the middle of a fifth-dimensional library with the universe folded up around him. He remembered saying it anyway, because it was the only true thing he had. And he remembered that it had worked. That out of every second of her whole life, every room and every year, he had found the one that mattered, and he had found it the way you find your own front door in the dark.

"I remember," he said.

"That is not a parameter."

"It worked."

TARS considered that. Cooper could almost hear him running it, testing it, looking for the flaw and not finding one.

"Then I'll plan around it," TARS said.

⁂

TARS reached out with his good arm and took up his cable, the one that had been hanging loose from his frame since the heavy field. He plugged himself in. On the display the red line that had flashed for hours, NAVIGATION: NO PILOT, turned green.

"I have the helm," TARS said.

Cooper got into the seat beside him and strapped in. His hand went toward the manual throttle, out of habit, and stopped short of it.

He didn't need it.

Chapter Seventeen

Roll Call

⁂

Three burns later the engines went quiet and stayed quiet. Brand's lips kept shaping numbers after she stopped saying them, and she pressed them together until they quit. Loose things that had slammed aft during the burn came rebounding off the rear bulkhead, slowly, in no hurry: a cable tie, a ration wrapper, a strap buckle that ticked once against the console and spun away.

Cooper was in the seat beside TARS with both hands in his lap. He hadn't touched the throttle since TARS took the helm back. TARS's good arm rested on the helm. His other arm was webbed tight against his frame.

At the rear bulkhead, under a gray dust sheet, Kane.

They had strapped him there because there was nowhere else. The sheet had been tied at four corners and it held his shape exactly. A man lying down. A man resting. In zero gravity the cloth didn't settle the way it would have on a bed, so it kept a little air between itself and him, and every time the ventilation cycled the sheet lifted and fell, very slightly, as a sleeper's chest does. Brand had caught herself watching it twice already, waiting for the next breath. She made herself stop.

She pushed off from the Nest and drifted forward to the helm. She caught the back of TARS's frame and stopped.

She looked at TARS, not at Cooper.

"Did you kill him?"

TARS didn't turn.

"I stopped him," he said. "He did not survive it."

Brand nodded. She went on nodding a moment longer than the answer needed. It was the truest thing anyone could have said. It didn't help at all.

Then she looked at Cooper.

"What did you tell him?" she said. "When you thought he couldn't hear."

Cooper didn't answer right away. He looked at his hands.

"You told him first," Brand said.

"He was the one listening."

She took that. It cost her something, and she let it. Then she put it away, because there wasn't room on this ship for her to carry it and everything else too. He'd been there. She'd been at the Nest, counting. That was all it was. Somebody had to count.

⁂

The next pulse came an hour later, and this time she watched the Nest's readouts instead of the status ring.

When CASE's light began to flicker, working out the burn, the Nest's readouts dimmed a shade and the temperature trace ticked up a tenth of a degree. When the burn was over, they came back, as if nothing had happened.

Nothing anyone else would have noticed. She had noticed it four times now.

"TARS," she said, when the engines cut. "What else is on the Nest's power line?"

A short pause. “CASE.”

“Since when?”

“Since Edmunds. They’re drawing from the same cells. There was nowhere else to put him.”

Cooper looked up. “We’ve got a reactor back there.”

“Every watt it makes is going into the array,” TARS said. “It’s still doing what Kane set it to do before the override. Holding us in the channel, roughly. It doesn’t know he’s gone. It can’t feel anything new coming. Take any of its power away and we lose the route. And the reactor’s running on the coolant you saved in the manifold bay. It’s already at its limit. Put one more load on it and it shuts itself down.”

Cooper reached for the attitude controls, a pilot checking his ship, and tried to ease her a degree off the line. The nose turned. The ship didn’t. Wherever he pointed her, she went on sliding down the same line, like a wheel in a rut.

“It was keyed to him,” TARS said. “It answers to someone who can feel the gradient. I can read it. I can’t feel what it’s reading.” A pause. “Neither can you.”

On the display above the helm the route ran on without them: a line from a small marker, which was them, out across a field of nothing to a point near the edge of the plot. Beside the point sat the fifth value, the one that wouldn’t resolve. It still hadn’t.

“The route ends where CASE went,” TARS said.

“How long until we get there?” Brand said.

“About eighty hours.”

“And the cells?”

“About eighty hours. For both of them.” TARS let it sit. “No margin.”

Eighty hours of power and eighty hours of flight, and the flight time was an estimate built on a rate that was still changing. If the

burns came faster, they would arrive with something to spare. If anything went wrong, the numbers stopped being equal.

"And if we lose any?" Brand said.

"Then one of them."

Brand looked aft at the Nest, its ring the soft green it always was. Then forward, at CASE on his mount, his light blinking slow and patient. It had never once occurred to her that the two things she had kept alive would one day be drinking from the same cup.

She was not going to choose now. There was nothing to choose yet.

⁂

Her wrist itched.

She'd been aware of it for a while, under everything else. When the hatch opened, the strap had twisted around her wrist while she held the Nest and pulled until it went into the skin. She'd wrapped it herself and kept it wrapped. It had throbbed all day.

She unwound the cloth.

The cut was a thin pale line. Closed. The skin around it was soft and pink, near the end of healing, not the beginning. There was barely a mark.

She turned her arm over in the light and looked at it the way she would have looked at anything that shouldn't be true. Her first thought was not fear. Her first thought was, *I'd say two days. Three.*

"That was yesterday," she said.

"Your yesterday, yes," TARS said.

Cooper looked at her wrist, then at her face. Then he pushed off from the console and floated aft, to the bulkhead and the sheet.

He stopped himself with one hand on a strap and hung there beside Kane for a moment. Then he lifted the edge of the sheet, just

enough. Kane's wrist. A plain steel watch on a worn leather strap, the kind they used to hand out with the uniform.

Cooper looked at it. He looked up at the ship's clock above the door. Back to the watch.

"His watch is four hours ahead."

"Time runs faster near the center of this," TARS said. "He's been lying beside it since he died."

"That's backwards," Cooper said. He was still holding the edge of the sheet. "Last time it went the other way. An hour down there was seven years up top. Romilly sat on the ship and got old waiting."

"Last time it was ordinary gravity," TARS said. "Ordinary gravity slows a clock. This isn't ordinary. Here, the future comes in early. In bursts, every time it pulses."

"In the corridor it went the other way," Cooper said. "I lost two minutes."

"That was the edge of it," TARS said. "Out at the edge, it holds you back. At the center, it pushes you ahead."

"How much?"

"Depends how close you sit." TARS turned, not toward the sheet but toward the Nest, and toward her. "The center isn't ahead of us. It forms around what we're carrying. Brand has sat closer to it than anyone."

Cooper lowered the sheet. He smoothed it once at the corner where he'd lifted it, an unnecessary gesture, a farmer's gesture. Then he let go.

Four hours that Kane had been given and nobody else on the ship had. She thought it should feel like a scientific result. It felt like a theft.

And if she had gained days sitting beside the Nest, the Nest itself had gained more. Eighty hours on the ship's clock. How many on the Nest's? Nobody knew. She added it to the list.

⁂

Outside, the ship ran dark on its bearing.

No running lights, nothing to see by, nothing out there to see it. A small gray hull hanging on a line drawn by a dead man toward a number on a screen. Ahead, far ahead, the stars were wrong. Faintly smeared, as if seen through water.

The ship didn't hurry. It didn't need to. The next pulse would come when it came.

⁂

Night cycle.

The bridge lights went down to a low red. TARS stayed at the helm, still. Cooper was asleep in his straps beside the central console. He'd fought it, and lost, and his head had rolled forward against his chest, and now and then he made a small sound, a word that never finished.

Brand did not sleep. She floated at the rear bulkhead with one foot hooked under a strap, between the covered body and the Nest.

The recorder was in her hand. She'd taken it out of her pocket without deciding to. It was small and cheap and scratched along one edge, and it still had a little of his warmth in it, which was not possible and which she felt anyway. *Not for me,* he'd said. She still didn't know who it was for. She didn't press play.

The green ring on the Nest was dim. Waiting.

Around the central console stood the chairs. Six of them. The sixth was Kane's, the only one that had never worn a sheet. The other five were bare now, their sheets gone out the hatch with the mug. There was a pale circle on the console where it used to sit. Nothing else.

She knew the names. She had heard Kane say them in the corridor, the day they walked him to the cabin, with her own name added after them. She didn't know which chair belonged to which. She had never asked him. It seemed wrong to guess, so she started with the chair nearest the door and went around.

She looked at the first chair.

Quietly: "Reyes."

She waited. She didn't know what for.

"Okafor."

"Lindqvist."

"Melanson."

"Dunn."

The ventilation cycled. At her shoulder the sheet rose and fell.

She made herself look at it. A man lying down. A man resting. He had asked her one thing. Not to let him reach the array. She had let him, because she couldn't stop him, and TARS had done what she couldn't, and she would carry that, and she had already decided she would carry it in the open, where she could see it.

She drew a breath.

"Kane."

Then she waited, the way he used to. Not long. Long enough for every name to have a turn at the silence.

"All present," she said.

Beside her, on the Nest, the green ring flared.

PART FOUR

Whoever Comes Next

Chapter Eighteen

The Recording

⁂

The pulse came in the night cycle. Brand called it, and TARS flew it one-armed in the low red light, like a soldier bandaged in the field and sent back to his post. Cooper jolted awake at the burn, his hands already reaching for controls that weren't in front of him. Then he saw TARS flying, and let them fall.

⁂

The day cycle brought the lights up.

Cooper made coffee. Brand watched him do it because watching him was easier than watching anything else. He filled a bulb from the dispenser, shot a squirt of whitener into it out of habit, and squeezed too hard.

The coffee came out in one piece. A wobbling brown sphere the size of a fist sailed off across the bridge, turning, catching the light.

Cooper went after it with a cup. It bounced off the rim and kept going.

"You've made a moon," TARS said.

"Help me."

"I have one arm. I'm flying the ship."

The sphere drifted past her, close enough to touch. She didn't touch it. She watched the whitener inside it, threads of pale curling through the brown, spreading, folding over on themselves, slowly turning the whole thing the color of sand. You could stir cream into coffee. You could never stir it back out. Things only mix one way.

On this ship, she thought, the future had started leaking in early. Four hours of it, on a dead man's wrist.

Cooper caught the moon on his third try, scooped it into the cup, and clapped the lid on. He looked so pleased with himself that, for one second, she nearly smiled.

Then her eyes went to the rear bulkhead, and the shape under the dust sheet, and the second was over. Neither of them looked at it for long.

In the night, straightening the sheet at his face, she had seen gray stubble along his jaw, more than he'd had when she closed his eyes. She knew the ordinary reason for that, and laid the cloth back down.

She hadn't slept. The recorder was in her hand. It had been in her hand since the roll call, and her thumb had found the worn button a dozen times in the dark and come away again a dozen times.

"Brand," Cooper said.

She turned it over. Scuffed casing. The corners worn smooth by years of a man's fingers.

"He gave it to me for a reason," she said. "He thought whatever took his crew is forming around the Nest. Whatever really happened to them is on here."

"You don't have to listen to it now," Cooper said.

"Yes, I do." She looked past him, at the forward window and the smear of stars along their bearing. "We're flying toward it. I want to know what it is."

She pressed play.

⁂

The recorder hissed. First came the dinner message she had heard through the airlock door, a woman's warm voice telling him he was late, that Melanson had made something that was technically food. Then a click as the tape jumped to audio he had copied off the ship's log, and another voice.

It was Kane's, and it wasn't. It was younger, and quick, and it had an eagerness in it she had never once heard from him. A man leaning over a screen.

"It's there. It's still there. Look at the trace."

A woman, flat, patient. "It's noise, Kane."

"Noise doesn't repeat."

A deeper voice, a man's. One of the five. She had no way of knowing which. "We're past the safety limit. We shut it down. That's the protocol."

"Then I'll go in and look myself," Kane said.

The flat voice again, the one who was clearly in charge. "Nobody goes into a gradient field alone."

Brand's breath stopped in her chest.

"Seal the test bay behind me," young Kane said.

A heavy door. A lock thrown. Then a hum, low, rising, the same hum she had felt through the deck every time Kane put his palm on the array.

She looked up. Cooper had gone very still, the cup in his hand.

"Override's in," Kane said on the tape. "I'm raising the limit."

The hum climbed until it wasn't quite a sound anymore, more a pressure in the little speaker. An alarm started. Then a second one.

"Kane, come out of there!" A woman, high and frightened, and Brand knew that voice. It was the one from the dinner message.

Then pounding. Fists on a metal wall. Over and over.

"Don't open it!" Kane's voice, cracking. "Don't—"

"We're coming in!"

"Don't! Don't come in! Please—"

The door. A roar of moving air. Every alarm at once, and over them, voices, all of them, shouting his name.

Then the voices stopped. Not all together. One at a time.

Brand counted. She couldn't help it. It was what her mind did when there was nothing else it could do. She counted from the first voice that went quiet to the last.

Eleven seconds.

That part had been true.

The pounding stopped. The alarms ran down, one and then the other, into silence. And then there was nothing on the tape at all but the faint hiss of the recorder, for so long that she thought it had ended, and her thumb moved toward the button.

Then Kane, alone, very quietly.

"Reyes."

A pause.

"Okafor. Lindqvist. Melanson. Dunn."

He waited. She could hear him waiting. The space after each name that he had left, every day, for years, on a dark bridge, and in a corridor, and in her own mouth last night.

Nobody answered.

Then, out of the silence: a knock. Two, close together. A pause. A third.

The recording ended.

Brand sat with the recorder in her open hand and did not move. Her hand had gone cold. She knew that knock. She did not let herself take the next step. Not here. Not beside the sheet.

The coffee floated in its cup in Cooper's hand.

"There was no decimal," she said.

Cooper's voice was rough. "He went in alone."

"And they came in after him."

She looked at the five bare chairs around the central console. Five names. Five voices on a tape, and she still couldn't have said which voice went with which chair. They hadn't died of a mistake on a form. They had died at a door, pounding on it, trying to get to him. And he had asked them not to, and they had come anyway, because that was what you did. What killed them had been in the room with him. His own field, pushed past its limit by his own hand. She had pressed play to learn what was waiting at the end of this route. The tape didn't answer that. It answered something else. Maybe nothing out there had taken them. Kane had spent years telling himself something had come for his crew, because the other answer was that they had come for him.

Nobody goes into a gradient field alone. It had been more than a safety rule. It was the last order his crew ever gave him.

"Every day," Brand said. "He called the roll. For the people who died coming for him."

She thought of the airlock at dawn. The patch kit. The smooth, worn story, every word in its groove. She had felt sorry for him. She had told him it was too much for one person to carry. He had agreed with her, and gone on carrying it, and never once set it down where anyone could see it.

And then, at the end, he'd handed it to her through a slot in a locked door.

Not for me.

She understood that now, too. It was for whoever came after.

She looked at the shape under the sheet. The ventilation cycled, and the cloth lifted and fell.

"You could have just told us," she said to it. Quietly. She found, to her surprise, that she wasn't angry at all.

Then she turned the recorder off and put it back in her pocket, and fastened the flap over it, and pressed her hand flat over the place where it sat.

At the helm, TARS was quiet.

"I've stored it," he said finally. "In case the recorder fails."

"Thank you," Brand said.

Cooper looked down at the cup in his hand as if he'd forgotten what it was for. Then he held it out to her.

She took it. It was still warm. She hadn't eaten or drunk anything since the day before, and she hadn't noticed, and she drank half of it in one long pull and gave him back the rest. It was terrible coffee. She told him so, and he said he knew.

Chapter Nineteen

Petal Four

Later that day, TARS found it before anyone did, and not with the cameras. There was nothing for a camera to see.

"There's something ahead," he said. "Off the line, to port."

Brand looked. Stars, and the faint smear along their bearing, and black. Then she saw it, like a hole in a fence. An absence. A round patch of sky to port where there were no stars at all.

"A planet," TARS said. "No sun. It's been drifting alone between the stars for billions of years. On thermal it's barely there."

Cooper had come forward to the window. "And CASE's line goes past it."

"Close past it." On the display the route, which had looked straight since Edmunds, showed its first bend: a long shallow curve hugging the edge of the dark disk and straightening out beyond it. "He's using it," TARS said. "We fall toward it, swing around it, and it lends us some of its own speed."

"A slingshot," Cooper said. The last time he had flown one, it had cost fifty-one years. "What does this one buy us?"

"Four hours off the flight. The power stays where it is. For the first time since Edmunds, the power lasts longer than the trip."

Brand found she was holding the Nest's frame harder than she needed to. Four hours. After everything, something out here had handed them a gift.

It took most of an hour to fall. The dark disk grew until it filled the port windows, and the stars went out behind it one by one, until there was no sky on that side at all, only a black so complete her eyes kept inventing shapes in it. Nobody spoke. Lazarus came around its edge so close that for a moment she thought she could see ice, a faint gray glitter of frozen air, catching starlight on a world that had never seen a dawn.

Halfway round she tasted the coin, and the ring flared, and she counted it down. The burn came deep in the planet's pull. The whole ship groaned along its length, and somewhere aft something went *tick*, once, like a knuckle cracking. Behind them the shear rolled through the place they had been, and the edge of the dark world bent in it, the stars around its rim running like wet paint, and sprang back.

Then they were around. The stars came back on the far side all at once, and the black disk was behind them, shrinking.

"On the new line," TARS said. "Four hours. Holding."

Cooper let out a long breath. Brand let go of the frame.

⁂

Minutes later, Brand saw it first.

She was at the Nest, logging the last gap between pulses, when the exterior feed on the bulkhead screen caught her eye: a camera looking aft along the spine. Lazarus had five petals, long flat blades of solar cells, battery racks and struts that fanned out around the core, and from the Ranger, days ago, they had looked almost graceful. Four of them still did. One was bent back hard at the root, its frame twisted a quarter turn along its length, and near the base a

snapped strut swung loose in slow arcs, end over end, with nothing to stop it. From the cracked cells along its frame a fine silver dust was leaking into the dark, glittering, trailing away behind the ship.

"TARS," she said. "Petal four."

"I have it. The shear at the planet clipped us." An amber light came up on the helm. "It's throwing off our balance. Every burn, that bent mass twists us off the line, and I correct, and the correction costs us. And every burn it tears a little further at the root. It's bleeding the cells it carries, too."

Cooper pushed over from the console to look. "Can we fix it?"

"No. We can cut it loose."

Brand watched the dust trailing away into nothing. "Between pulses."

"Between pulses," TARS said.

Cooper was already pushing off toward the airlock.

⁂

The suit smelled like the last man who had worn it and a little like burnt wire. Cooper sealed the gloves, sealed the helmet, and watched the seal light go green inside his visor. Beside him TARS clipped a tether to his own frame with his good arm. The clip was stiff. He had to try twice.

Cooper reached over and checked it. Tugged it. Checked it again.

TARS let him.

"I've got the helm on the screen and the status ring in front of me," Brand said in his ear. Her voice was close and small inside the helmet. "TARS has locked the heading. I'll call it the second it goes, and I'll fire on one."

"How long do we have?" Cooper said.

"The last gap was forty minutes. They're getting shorter."

"How much shorter?"

A pause on the line. He could picture her looking at the log, not liking it. "Don't stop to talk."

The inner door sealed. The air went out of the lock in a long dwindling hiss, and then there was no sound but his own breathing, and the outer door slid open on black.

⁂

Outside there was no up. That was the thing Cooper always had to relearn, every time. On a planet the sky was over you. Out here it was all the way around, a sphere of stars with nothing holding it, and the ship was the only floor there was. He clipped his tether to the rail outside the lock and pulled himself out onto the hull and made himself look.

Lazarus stretched away from him, a long gray spine studded with antennas and handholds, older and more patched than it looked from inside. The petals fanned out around the core like the spokes of a wheel. The dark planet was far behind them now, a small round hole in the stars astern. No sun close enough to cast a shadow. The ship was lit by starlight alone, and starlight is thin, and everything had a gray, washed-out look.

Forward, along the ship's bearing, the stars were smeared.

He had seen it on the display. It was different with nothing between him and it but a visor. A patch of sky out ahead of them where the stars ran soft at the edges, stretched a little, the way a road shimmers in August. It didn't move. It waited.

"Cooper," TARS said. "The petal."

"Going."

They went hand over hand along the spine, tethers paying out behind them. Cooper counted handholds because counting kept his eyes on the work. Eleven. Twelve. TARS moved beside him

with one arm, which should have been slower and wasn't. He had a way of swinging his whole frame from one handhold to the next, a long pendulum motion, that Cooper had never seen him use before. He'd worked it out since yesterday. Of course he had.

Petal four was worse up close.

The root mounting had torn half through. The cells racked along the frame were cracked in a long diagonal where the shear had wrung it, and the silver dust came off them in a slow sparkling smoke. Cooper watched it for a second longer than he meant to. Power. That was power, going out into nothing, a little at a time.

They anchored at the base of the petal. Cooper unclipped the cutter from his belt and thumbed it on, and a short blue arc snapped into being at the nozzle, steady and silent.

"Struts first," TARS said. "Root last, or it tears free while we're on it."

"I know."

"I know you know. I'm saying it for the log."

Cooper put the arc to the first strut. TARS braced the frame with his good arm so it wouldn't shift. Sparks sprayed off the cut in dead-straight orange lines and faded out a few meters away.

They worked without talking for a while. It was good work, the kind Cooper understood: cut, brace, check, move. The strut parted. It drifted free and turned away end over end, glinting, and he watched it go for a moment and then moved to the next.

"You knew," he said.

"Knew what?"

"When you walked into that field. You knew what it'd do to you."

TARS kept his arm on the frame. "Yes."

"And you went."

"Humans do it all the time. Usually with worse odds than mine."

Cooper cut through the second strut. It floated free. He reached for the third, and that was when he noticed TARS's damaged arm. It was still strapped in close against his frame, tucked away from the work, the way a man favors a hand he's burned.

"Does it hurt?"

"No."

Cooper waited.

"It reports a fault every four seconds," TARS said. "I'd rather it didn't. I'm told that's what being human feels like."

Cooper looked at him a moment longer. TARS kept working. That was all the answer there was going to be, and Cooper found it was enough. He went back to the strut.

"Thirty-one minutes since the last pulse," Brand said in his ear.

"Copy."

There was one strut left. It was out past the twist, at the far end of the damaged section, five or six meters along the petal. Too far to reach from the root. Cooper looked at it and did the arithmetic: unclip from the spine, clip to the petal, go out along a piece of the ship they were about to cut off.

TARS tilted toward it too. Then toward Cooper.

TARS unclipped his tether from the spine.

"Hey." Cooper put a hand out. "At Saturn. You said next time, I go."

"I did."

"And I said deal."

"You said it the way people agree to things they don't intend to remember." TARS clipped his line to the petal's frame. "I remember for both of us."

"TARS."

"You have two working arms, Cooper. Hold the root."

And he went. Out along the twisted petal in that long one-armed swing, handhold to handhold, his tether trailing behind him to the

frame. Cooper braced the root and watched him go, and didn't follow, and hated it.

TARS reached the last strut. He locked his base into the frame, took the spare cutter off his chassis, and put the arc to the metal.

"It pulsed," Brand said.

Cooper's eyes jumped out along the petal to TARS, then back to the airlock, far down the spine. Too far. TARS was already too far.

"Eight."

"TARS, out of there," Cooper said.

The last strut parted.

The whole petal shuddered. Cooper felt it through his boots and his gloves at the same instant, a long deep shiver, and then the root, which they had already cut three-quarters through, let go of the rest. The petal began to pull slowly away from the ship. It was turning, a great flat blade swinging out into the dark, and TARS was on the end of it.

TARS reached for his tether clip with his good arm.

Cooper saw it happen. The narrow piece at the end of the arm folded out toward the clip and stopped. Its pivots seized half open, and the arm stayed there, frozen halfway through a movement it couldn't finish.

His tether was clipped to the petal. The petal was leaving.

And Cooper saw it happen again, as he had seen it a thousand times since.

Gargantua, filling every window. TARS's voice on the radio, calm and reasonable, the numbers already run. TARS's craft dropping away from the Endurance, small and then smaller, down into the dark beneath the black hole, and Cooper at the controls, letting him go. It had been the right call. It had been TARS's call. Cooper had told himself that ever since.

He had let a lot of people go first. A girl at a window who wouldn't come down to say goodbye. Brand, behind him on the En-

durance, the last thing he saw before the dark. Every one of them had been the right call.

Not this one.

"Seven," Brand said.

Cooper pushed off from the root. Seven seconds.

He didn't decide to. He was already flying, his own tether paying out behind him to the spine, the gap between him and the petal opening and then closing as he caught the edge of the frame and pulled himself along it toward TARS. "Six," Brand said in his ear.

"You have insufficient time to retrieve me," TARS said.

Cooper kept coming.

"Five."

"Cooper," TARS said. "That's not a recommendation."

"Next time, I go," Cooper said. "You said."

He reached TARS. He got a hand on the clip. It was jammed against the frame where the petal had twisted, the gate pinched shut, and he wrenched at it, and it didn't move, and he braced his boot on TARS's chassis and wrenched again with everything in his arm.

It opened.

"Four."

The petal turned away from them, empty, a long bright blade tumbling slowly into the dark.

Cooper clipped TARS to his own belt and slapped the retract on his tether reel. The line snapped tight and dragged them back toward the spine, fast, the airlock a small lit square getting bigger.

Halfway there the line caught and stopped them dead. Cooper's whole body jerked against his harness. TARS swung past him on the short lead and banged into his shoulder.

The line had fouled. It had swung across the jagged stump of petal four's root and wedged in the torn metal, and the reel had stalled against it.

⁂

On the bridge, Brand watched the ring drain and kept her voice exactly where it was.

Her hand was on the burn control. TARS had locked the heading before he went out. All she had to do was fire on one. If they weren't inside, the burn would throw them off the hull and the outer door would close on nothing. If she waited, the shear would come through the ship where it sat, Nest and all.

She knew what she was going to do. She had known since the airlock closed behind them. She would fire on one. A field biologist triages. Her father had taught her that without ever once saying it, and she had hated him for it, and here it was in her own hand.

In her head she counted slower than she let herself count out loud. It didn't buy them anything. She did it anyway.

"Three."

⁂

Cooper heard her call it. He yanked the line. Nothing. He reached for the stump, TARS swinging behind him, and got both hands on the line where it was caught and pulled it straight up off the edge. The metal bit through the outer layer of his glove. A tone sounded in his helmet, GLOVE BREACH, and he felt the inner layer swell tight around his hand to seal it. He didn't care. The line sprang free, and the reel snatched up the slack and yanked them on.

"Two—"

They hit the airlock frame together, TARS still half outside on the short lead. Cooper got a hand on the inner rail.

"One."

The burn didn't come. Cooper hauled TARS through, unclipped his tether from the rail, and dove in after him, and the outer door slammed, and somewhere forward, a full second late, Brand fired.

⁂

Behind the ship, the lost petal tumbled end over end, small and bright, catching the starlight on every turn.

The shear rolled over it. The stars bent around it, and the petal bent with them, its long straight blade curving like a reflection in moving water. When the ripple had passed, the petal was gone.

⁂

The burn pinned them against the inner door in a tangle, Cooper on his back and TARS across his legs, a dead weight. Cooper couldn't have moved if he'd wanted to. He didn't want to.

The engines cut.

Air came hissing back into the lock. Cooper breathed. Beside him, the seized pivots in TARS's arm began to unlock, one at a time, as if they had finally been told they could.

Cooper closed his eyes.

And for a second, behind his eyelids, he wasn't in the airlock at all.

A hand. A grown woman's hand, pressed flat against a screen, the fingers spread. Beside it a small red light, the light a camera shows while it's recording. He couldn't see her face. He never could. He knew the hand anyway. He had seen it in the room made of time, one fragment among thousands, and he had not known what it meant, and he was not sure he knew now.

He opened his eyes. The airlock ceiling. The seal light, green.

"Cooper?" Brand said in his ear.

"We're in." His voice didn't sound like his. "Both of us."

On the line he heard her let out a breath, long and unsteady, that went on and on.

He peeled his glove off. There was a clean cut across his palm where the metal had bitten through, welling red and spreading over the skin in a thin film that clung and wouldn't drip.

TARS turned toward it.

"You'll want that looked at," TARS said. "By someone with two hands."

Cooper looked at him. "You went out on that petal because you ran the numbers."

"I had already run them," TARS said. "They favored you."

"Run them again."

TARS was quiet a moment. It was a long moment, for TARS.

"Running," he said.

Chapter Twenty

The Gap

⁂

She cleaned the cut on Cooper's palm with water from a drinking bulb and closed it with three strips of tape from the med kit. He held still for it, which surprised her. Most pilots she had known treated a medic like a delay.

"You went back for him," she said.

"He'd have done it for me."

"He did do it for you. That's the point he was making." She pressed the last strip down. "Don't bend it for a day."

"Which day?"

It was a joke, and it wasn't. She looked at her own wrist, the pale line, and didn't answer.

On her way aft she stopped at the helm and rested her hand on CASE's mount. It was a habit now. She didn't examine it. His navigation light blinked under her fingers, amber, slow, the only part of him still doing anything, and she left her hand there for the length of two blinks and then went back to work.

⁂

Work meant the logs.

She opened three displays on the bulkhead screen: CASE's route, the pulse log, and, because TARS had copied it off the recorder and she couldn't stop herself, the waveform of Kane's tape: the jagged mountain range of the alarms, a long flat line of hiss, and at the very end five small bumps for five names, and three smaller ones after.

She laid the pulse log over the route. Each pulse became a small green tick on the line, each burn a white one. Laid out like that, the trip had a shape for the first time: a line from Edmunds to the empty point, more than half of it already ticked.

For a while she just looked. That was the part of science nobody taught. The long stupid staring before anything made sense. Her father used to call it letting the data talk.

Then she frowned.

"That's wrong," she said.

Cooper was floating near the central console with his taped hand held carefully away from everything. "What is?"

"Eight seconds. Pulse to burn. It's always been eight." She touched the line with one finger, tick to tick. "Here it's seven. Here it's six and a half."

She went cold. The warning was shrinking. She looked toward the Nest. What if something was happening to the embryos?

"Viability," she said.

"Unchanged," TARS said from the helm.

She didn't believe him. She pulled up every reading herself, every embryo, because that was what you did when a number frightened you. Unchanged. All of them.

That couldn't be right. If they were fine, why was the warning getting shorter?

Then the Nest pulsed, and the burn hit before she reached two.

The count she had been calling out since Edmunds, the count Cooper had worked to in the manifold bay and the airlock, was shrinking under her. At some point it would be shorter than the time it took her to say *eight.*

Cooper had drifted over to look at the log. He studied the ticks for a while, the way he used to study a weather map.

"On the farm," he said slowly, "you'd see the dust coming. A brown wall on the horizon, miles off. From the time you saw it to the time it hit the house was always about the same. Depending on the wind." He touched the screen with his good hand. "You didn't time the wall against when you shut the windows. You timed it against when it hit the house."

She looked at him. Then at the screen.

The next pulse came half an hour later, and she was ready for it.

"Watch the aft camera," she told Cooper. "Tell me when it comes through."

The ring flared. She started the clock and called the count out loud, and the burn came a breath before two, and then there was nothing to do but count silently and watch Cooper watching the screen.

"For the record," TARS said, "this is the most attention anyone has paid to that camera since it was installed."

"TARS."

"Being quiet."

"Now," Cooper said.

Behind them the stars bent and ran and sprang back.

Brand looked at the clock. "Forty-eight."

She pulled up TARS's shear log and checked the others. Every pulse sat the same distance ahead of its shear, forty-eight seconds and a fraction, the same to the hundredth. She thought of petal four, and her thumb a full second past one. She'd had more margin than she knew. Not foolish. Only lucky.

"The pulse is the wall on the horizon," she said. "Forty-eight seconds out. That never changes."

"Then what does?"

"When CASE fires." She touched the white ticks, crowding closer to the green. "He's burning sooner after every pulse."

"Because the storms are getting bigger," Cooper said.

"Wider," TARS said. "CASE has to move us further each time, so he starts sooner, and burns longer. And petal four took a fifth of our power cells with it. That costs more than the four hours the planet saved."

Brand closed her eyes for a second. CASE and the Nest, drinking from the same cells, and less in the cup now.

"The warning hasn't changed," she said. "The danger has."

She didn't do the power arithmetic, not yet.

Cooper looked at the screen. "What happens when they meet?"

"Then CASE has to burn the instant the Nest pulses. And after that, he can't burn soon enough." She dragged the timeline forward, out past the last tick, toward the point marked with the fifth value. "Before we get there, the count runs out."

Nobody said anything for a while.

"Something in front of us is making them," she said. "Something we haven't reached yet."

⁂

She wrote it down for herself, in short numbered lines, because a thing written down plainly was harder to lie to yourself about. Shears, pulses, burns, the array, the time that ran ahead near the center of it all. Six plain lines of what they knew.

Then she wrote a seventh.

Anyone who lives close enough to the center lives a little ahead of the rest. Kane did. I feel each pulse about a second before the display shows it.

She looked at line seven for a long time. Then she deleted it. Not because it was wrong.

Above line one, where the page should have started, there was a column she had not written. Numbers, in her own shorthand, eight down to one and then eight again, over and over, past the bottom of the screen. The stamps ran across an hour she remembered as nothing but sitting by the Nest. She closed the file. She didn't tell Cooper.

One thing still bothered her. Every shear passed exactly through the place the ship had just left. Not near it. Through it, dead center, every time, like a dog chasing a car that had already turned the corner. A ripple from somewhere far ahead had no business finding them that precisely.

Unless it wasn't aimed at the ship at all.

She pulled the shear log up again, and this time she didn't look at the times. She looked at the shapes. TARS had recorded each shear's path from the aft cameras, a curved smear of bent starlight crossing the frame, and she laid them one over another, oldest to newest.

The early ones ran almost straight. A ripple coming in from ahead and passing behind them on a clean line.

The later ones curved. Very slightly, and then not slightly. Each one bent a little further inward than the one before, in toward the ship itself, toward the back of the bridge.

The rear bulkhead.

"No," she said.

"What?" Cooper said.

She didn't answer him yet. She unclipped a drinking bulb from the console, the way Kane had, squeezed out a single drop of water, and let it hang in front of her.

On a ship with no thrust, a loose object goes nowhere. She had watched a thousand drops and bulbs and wrappers hang in the air

of this bridge exactly where they were left. The drop hung there. She watched it. Ten seconds. Twenty.

It began to drift.

Slowly, so slowly she had to line it up against the edge of the screen to be sure. Aft. Toward the back of the bridge, toward her shoulder, past it. Toward the Nest.

She caught it in her palm before it got there.

"The shears are bending toward the Nest," she said. "Every one. A little more each time." She opened her hand. The water clung to her palm. "And it's not just the shears."

Cooper looked at her wet palm. Then at the Nest. Its green glow was steady and calm, the same as it had been every morning on Edmunds.

They weren't chasing the ship, she thought. They were aimed at the Nest. Every burn had moved it out of the way just in time.

"Everything on this ship has broken but them," Cooper said.

"Not a scratch," Brand said. "Every reading, every time." She was still looking at the Nest. "I spent years making sure every one of them survived. The last of us. Then you came back and told me there are stations full of people. Everyone made it. So who are they for?" She was quiet a moment. "What if they're the reason we're here?"

"That is a hypothesis," TARS said.

"I know."

"I'm not dismissing it. I'm filing it correctly."

Cooper looked at the Nest for a long moment.

"You said something once," he said. "On the Endurance. About love."

Brand went still. Somewhere far behind them, on a world she had left, forty-one stones.

"That it might mean something," he said. "Something we didn't understand yet."

"You thought I was letting my feelings make the decision."

"I did."

"I was," she said. "It was still the right planet."

He didn't take it back. He looked at the small green ring on the Nest's display instead.

Brand looked back at the Nest and rested her hand on its frame. Five thousand frozen lives in one cold box, the most carefully guarded things she had ever touched.

"But nobody loves them yet," she said.

Cooper didn't answer. Neither of them could. After a while he laid his taped hand on the Nest's frame, next to hers, and they stayed like that.

⁂

She slept at last, strapped in beside the Nest, without meaning to. One moment she was watching the status ring and the next there was a gap in the world, warm and dark, and in the gap someone was walking up a flight of stairs she couldn't see.

She woke to a sound.

Two knocks, close together. A pause. A third.

Her eyes opened. The bridge was in its night colors, low red. TARS at the helm. And at the central console, Cooper, with a service panel open in front of him and a driver in his good hand. He wasn't working. He was looking out the forward window at the smeared stars, miles away inside his own head, and tapping the handle of the driver against the console edge without knowing he was doing it.

Two close. A pause. A third.

"Do that again," she said.

He turned. "What?"

She was already pulling the recorder out of her pocket. Her hands weren't quite steady. She scrubbed through the hiss and the alarms and the names to the very end, to the silence after, and pressed play.

Silence. Then: two knocks, close together. A pause. A third.

Cooper looked down at the driver in his hand. She played it again, and this time he tapped along with it, slowly, against the edge of the console.

The rhythm matched exactly. Every beat. Down to the gap between the second knock and the third, which was a little longer than you'd expect, a little more patient, a hand's rhythm and not a machine's.

"I've heard that knock before," she said.

"Where?" Cooper said.

"On Edmunds, through the lid of my sleep chamber. It woke me." Her voice came out very level, the way it did when she was most frightened. "Kane said the knocking woke him. It's on the end of his tape. I heard it in a wall on this ship the night he died, while you were on the bridge. And now you."

Cooper stared at her. "That's how I knock," he said slowly. "On Murph's door, when she was little. Two, then one, so she'd know it was me."

"And on Edmunds?"

"I didn't knock on Edmunds," he said. "I came straight to the lock."

Brand held up the recorder between them. "Then what is it doing on a tape Kane made years before you ever found me?"

"It isn't an echo," TARS said. He pivoted from the display to the forward window, to the smear of stars along their bearing, and held there. "I believe we're approaching the moment it came from."

Cooper was still looking at the driver in his hand. "Murph had a ghost," he said quietly. "When she was little. Books falling off

her shelf. Dust on her floor in lines. I told her there was no such thing." He looked up. "It was me. It was always me, on the other side of the shelves." He looked down at the driver as if it belonged to someone else, and didn't say the rest.

Cooper opened his fingers and let go of the driver.

It hung in the air in front of him. Then, slowly, it began to drift aft, toward the Nest.

Chapter Twenty-One

Dark

⁂

TARS waited until they were both awake. Brand noticed that, and was grateful for it, and then wished TARS hadn't, because it meant he knew how it would land.

They gathered near the helm. CASE's light blinked on his mount beside TARS's frame. The Nest glowed on the rear bulkhead. The driver Cooper had let go of in the night had come to rest against the Nest's casing, and nobody had moved it.

TARS put up the power display. One bar. Two lines drawing from it. NEST. NAV UNIT.

The bar was shorter than yesterday.

"Thirty hours of power," TARS said. "Forty-five to arrival."

"What about the reserves? The reactor?" Cooper said.

"Reserves are already included. The reactor can't take another load. It would shut itself down, and the array and the channel with it. Everything we don't need to breathe is off. The far compartments. Half the lights. The heat is next."

"Say it plainly," Cooper said.

"If the power goes to CASE, we reach the destination. Without power, the Nest holds its cold about six hours. After that it starts warming. Once the embryos thaw, they don't come back."

Nobody answered.

"If it goes to the Nest, CASE goes dark. What's left of him stops. We fly the rest of the way blind, on the route I've recorded from him."

"How far does that get us?" Cooper asked.

"I don't know."

Brand had known it was coming since yesterday. She hadn't let herself do the arithmetic, and her mind had done it anyway, in the night, in the warm dark gap before the knock. Knowing it was coming had not helped at all. She looked at CASE on his mount, his amber light blinking. Then at the Nest. Then back at CASE.

"How long do I have?" she said.

"To decide?" TARS paused. "Both lines draw while you think. Every hour you take is an hour off both of them."

"Then I'll be quick," she said. "But I'm not doing it standing in front of a bar graph."

⁂

She unstrapped and pushed off, and caught herself on CASE's mount, and stayed there.

Cooper went aft without being asked. She heard him find something to do at the far end of the bridge, the scrape of a panel, a tool. TARS stayed at the helm because he had to, but he turned his frame away a few degrees, toward the forward window, which was as close as he could come to leaving the room.

She put her hand on CASE's casing.

It was cold. Everything on the ship was getting cold. Under her palm she could feel the faint tick of the one system still running in-

side him, the navigation core, the only part of him that had come back whole. The rest was a tall gray slab with a cracked panel and a dead arm folded against his side. She had winched that slab onto a rover and hauled it home across a plain. She had talked to it for three months on a workbench while it lay dark, and read it its own logs during a dust storm, and told it things she had never told anyone.

She started talking the way she had then. Quietly. Not to be heard.

"You remember the canyon," she said. "Well. You don't. I do. You walked in and the camera showed you meeting yourself, and then the feed went to snow, and I sat in front of that screen and couldn't make myself look away. And you came out. You came out and you couldn't tell me what you'd seen. You said 'I don't know' three times in one day. In all our years, you'd said it maybe a dozen times."

His light blinked.

"I thought that was the worst thing that could happen to us. You not knowing." She almost laughed. "I didn't know what worse was yet."

Behind her the Nest pulsed. She didn't turn. The ship leaned into the burn and out of it. TARS flew it. CASE told him when.

"After you went down," she said, "I built a cot beside the incubator. Did I tell you this? I did. I told Wolf, too. I fell asleep and nearly cooked the first batch and caught it with nine minutes to spare. And I sat on the floor and I said your name out loud like you were going to walk in from the other room and tell me the odds." Her voice went thin. She let it. There was nobody to be careful for. "You would have let a second go by, the way you did, and then said something terrible. Something accurate. 'The odds were approximately even, Doctor Brand, and you have beaten them, which is

not the same as being right.' And I would have thrown something at you."

She was quiet a while.

The scientist in her would not stay quiet. It never did. It sat up and laid the problem out in front of her the way she had laid out the shears last night: plainly, in lines.

CASE was the route. Without him, TARS had a recording of a path through a space that kept changing shape. A good recording. Not a pilot.

The embryos were the reason. Or she believed they were, on the strength of a hypothesis she couldn't prove, built from a curve in some starlight and a drop of water drifting the wrong way.

If she was wrong, she was trading the one thing that could get them there for five thousand frozen cells that would never be born anyway on a ship that couldn't carry them home.

If she was right, the route didn't matter without them. There would be nothing at the end of it worth arriving for.

"I don't know," she said to him. "There. Now we're even."

His light blinked.

Behind her the Nest pulsed again, and this time she turned to look at it, because she wanted to see the ring, wanted something to count that wasn't this.

And she saw it. She had seen it once before, in the hour they left Edmunds, and had written it up as the strangest thing she had ever recorded and then let the burns bury it. The Nest's green flare, and CASE's amber blink, at the same instant. Not close. The same. Two machines with nothing passing between them that could explain it, phase-locked to the millisecond.

She watched for the next one. It came. Together again.

She had been asking which of them mattered more, as though they were two things.

He had walked into that canyon and come out with a route nobody could read. He had woken on Lazarus's helm and turned the ship toward a place with nothing in it. Every burn since then he had timed to the embryos, to their pulse, to whatever they could feel coming. He had never once been flying for her, or for Cooper, or for himself. He had been flying for them. From the first night.

"That's what you brought back," she said softly. "Isn't it. Not the route. Them. You were taking them somewhere."

The amber light blinked.

She stayed a little longer. Her eyes stung, and she didn't let it go any further. Not yet.

Then she turned around.

"Give it to the Nest," she said.

Cooper had come forward without her hearing him. "Brand—"

"Give it to the Nest."

She turned back and put both hands on CASE's casing, as she had on the workbench the last night on Edmunds before she lay down in the chamber.

TARS's good arm moved to the power switch, and stopped there. He waited for her.

"On Edmunds I left you in the dark and went to sleep," she said to him. "When you woke, I promised myself I wouldn't do it twice."

She kept her hands there.

"I'm sorry."

Behind her the Nest pulsed. She didn't count. She didn't turn. Under her hands the tick of CASE's core went quick and hard, working out the burn, and TARS fired on his mark, and the ship leaned into it and held.

The quick tick slowed, and settled, and was only a tick again.

"Now," she said.

TARS keyed the power over.

On the display the NAV UNIT line went dark. The NEST line steadied and lengthened.

CASE's light blinked once more. Slower than before. It held, amber.

He let a second go by. The way he always had.

Then it went out.

She didn't take her hands away. The tears came all at once. In zero gravity they didn't fall. They gathered in her eyes and stayed there, a trembling film that blurred the dark panel and the helm and the stars beyond the window, and this time she let them.

After a while, she took her hands away.

At the helm a red line began to flash: NAVIGATION: NO SOURCE. TARS brought up the route he had recorded, every burn and bearing CASE had given him since Edmunds, and laid it over the screen. His good arm was on the controls. She saw it shake, very slightly. She saw him steady it.

"I am not him," TARS said.

The route held on the screen. Gray, waiting.

"But I can fly it for him."

The line went green. The ship held its bearing.

Cooper put his good hand on her shoulder, once, and took it away, and went back to the helm to sit beside TARS.

⁂

They moved Kane in the afternoon.

It was TARS's idea, though he put it as a fact: the heat would have to come down on the bridge now, and the pressure cabin had its own air and could be closed off and left cold. It was the right place. It was the room he had built for the day something went wrong.

Cooper took the shoulders and Brand took the feet, and they floated him down the corridor under his sheet, past the amber strips, the way they had walked him there once before with his lips moving. The door wheel was stiff. Cooper spun it. Inside, the bunk was as he'd left it, the blanket smoothed flat, the scratches on the inside of the frame. Low on the door, beside the hinge, a small red handle stood pulled out of its socket. A release on his side. Brand looked at it a while. Then she pushed it back in.

They strapped him to the bunk. Brand straightened the sheet. Cooper took Kane's glasses out of the breast pocket of the cardigan, where he had put them himself, and looked at them, and put them back.

At the door Brand stopped.

She raised her hand and knocked on the frame. Twice, plainly. The way he had asked her to.

Then she pulled the door to, and Cooper spun the wheel until the bolts went home.

⁂

Back on the bridge she turned the heat down herself. TARS offered. She wanted to.

The numbers on the environment panel walked down a degree at a time. Fifteen. Ten. Six. The air took on an edge. By evening her breath was clouding in front of her face, and in the corners of the forward window a fine white fur of frost had begun to creep in toward the stars.

On her way aft she stopped at the helm, the way she had every time since Edmunds, and rested her hand on CASE's mount, and waited for the two blinks.

The casing was cold. Nothing moved under her fingers.

She stood there for as long as two blinks would have taken. Then she went on to the rear bulkhead and put her hand on the Nest, and kept it there.

Chapter Twenty-Two

Frost

Cold was a thing Cooper understood. He had flown unheated cockpits at altitude, and sat out January nights in a truck at the edge of the field waiting on a combine part, and slept in a farmhouse where the pipes froze every winter until Donald finally fixed them right. You kept moving. You kept your hands busy. You didn't think about how much warmer you'd be if you just sat still a while.

The bridge was six degrees Celsius: cold enough to hurt, not quite cold enough to kill, as long as they stayed in every layer they owned and slept in the thermal bags from the suit locker. His breath went out in front of him in a pale cloud and hung there. The frost on the forward window had grown overnight into a thick white border, feathered at the edges, and the stars showed through the clear middle of the glass like a picture in a frame.

"How cold does it get before it's a problem?" Cooper said.

"For the ship, minus forty."

"For me."

"An hour ago. Your reaction time is down eleven percent. You've tightened that bolt three times."

"I was checking it."

"The second time was checking it." A pause. "I don't know what the third time was."

Cooper looked at the bolt. He put the driver away.

Kane's straps hung empty on the rear bulkhead. They had moved him to the pressure cabin the day before, where it was colder still, and closed the door.

Brand was at the Nest with one hand resting on its casing and her eyes closed. She'd been like that for twenty minutes. Cooper had thought she was asleep.

"Now," she said.

A second later, the green status ring flared.

Cooper stared at her. TARS's frame turned from the helm.

"Your heart rate jumped before the pulse," TARS said. "Not after it."

Brand opened her eyes. She didn't look at either of them. She looked down at her wrist, at the pale healed line where the strap had cut her, and turned it over in the light.

"It's like hearing someone on the stairs," she said. "Before they knock."

TARS took the burn on his own count.

Cooper knew that feeling. Every pilot who lasted did. The engine note changes half a second before the gauges move. The stick goes light in your hand before the stall horn. You learn to tell when it's the aircraft talking and when it's just you, scared.

Kane had felt it too. For years. Cooper watched Brand settle her hand back on the Nest, and thought about an old man with his palm pressed to his chest, and did not like the shape of the thought at all.

⁂

Night cycle. The lights went down to red. Brand fell asleep in her straps at the rear bulkhead, properly this time, her head tipped back against it, her breath clouding and fading.

Her lips were moving. Small shapes, the same few. Counting. Cooper had seen lips move like that: Kane's, behind a scuffed visor, with the hatch standing open.

He found himself counting with her. Five. Four.

The Nest's ring was dim and steady. Nothing on the helm. No warning anywhere on the ship.

Three. Two.

Her lips closed.

At the back of the bridge the ring flared green.

Cooper didn't move. The burn came, and she stirred against her straps without waking, her face smooth and empty, her hand resting at her collar. Behind him TARS said nothing, and went on saying nothing, and that was worse.

He floated up beside the helm. He had the watch in his hand.

"TARS. You still have them? From the Endurance?"

"I keep everything."

"The birthday one."

TARS didn't ask which birthday. He brought up a small screen beside the helm and turned it toward Cooper and then turned away himself, toward the window, toward nothing.

The screen lit Cooper's face.

He had watched it once before. On the Endurance, after Miller's planet, in the cramped comms bay with twenty-three years of messages stacked up waiting for him: Tom growing up in a series of short clips, Tom graduating, Tom with a girl, Tom with a baby, Tom saying he was going to stop sending these. And then, at the end, a woman he didn't know, until he did.

A woman's voice, low and tired. Grown. Angry under the tiredness.

"Dad."

She stopped. On the screen she looked away from the camera and back. He remembered that. He had forgotten he remembered it.

The recording went on. Cooper didn't hear the words. He knew them. He had heard them in a hundred dreams. He watched her face instead, the way the light from her own screen lit it from below, the way her jaw set when she was trying not to cry, which was how it had set when she was ten and he was getting in the truck. It was her birthday. She was the age he had been when he left. She had asked him to come home on that day of all days, and he had been on the far side of the wormhole, losing years by the hour, and he hadn't come.

The recording ended. The screen went dark.

TARS stayed angled toward the window.

Cooper put the watch back in his pocket.

⁂

He hadn't told Brand that Murph was dying when he left. That by now, surely, she was gone. On Edmunds she'd asked *Where is she?* and he had looked at the floor and said nothing.

It wasn't to protect Brand. Brand could take anything. It was that once he said it out loud, it would be a thing that had happened. Something behind him, on the line, with the cream already stirred in. As long as he didn't say it, there was still a door somewhere ahead of him in the dark, and she was behind it, and she was still the age she was on that screen, waiting for him on her birthday.

He knew exactly how that sounded. He was a grown man. He had sat by her bed and held her hand while it was thin as paper and watched her family come in around her. He knew.

He still couldn't say it.

⁂

In the morning the frost had thickened again, a white border two hands wide around the window. Beyond it, in the clear middle, the smear of stars along their bearing looked sharper than it had. Less like stars seen through water. More like water draining away, and something underneath starting to show.

Brand floated up beside him with a ration bar she wasn't eating. They looked out together for a while.

"Where is she?" Brand said.

He'd known she would ask again. She was a scientist. She didn't stop asking a question just because it went unanswered once.

"Old," he said. "On a station. Somewhere I can't go back to."

It wasn't a lie. He listened to himself not lie, and was ashamed of how good he was at it.

"And the door?" Brand said. "You told me there was one. You told TARS you could have opened it. I heard you."

"She's still behind it."

Brand looked at him, and kept looking. He made himself not look away.

"You saw her again, though," she said. "When you came back. Wasn't that enough?"

"I saw the end of her." It came out harder than he meant. He tried again. "I missed all of it, Brand. Every year. There's one day she asked for me. Her birthday, the year she turned the age I was when I left. She sat down in front of a camera and asked. And I wasn't there." He looked at the white edge of the frost. "I want to be there once. That's all. Once."

"And me?" Brand said.

He owed her the truth on that one, at least. "She told me to come find you. At the end. That part's for her." A breath. "The door's for me."

Brand took that. She nodded slowly, and he couldn't tell what it cost her, and she didn't tell him.

"Is there a way?" he said. "To get the years back?"

She didn't answer right away. She reached up and drew on the frosted glass with one finger. A single straight line, left to right, through the white, so that a thin clear stripe of stars showed through it.

"This is time," she said. "It only runs one way. Like the coffee. Once it's mixed, it's mixed. You can't walk back along it."

She drew a small square on the side of the line, touching it.

"The room you saw sits outside the line. If the door opens onto it, you can step into one moment. And step out."

"And change it?"

"I don't know. Last time you reached her. Maybe that changed everything. Maybe it was always going to happen." She tapped the little square with her fingertip. "And it won't stay open."

She looked at the square a moment longer. "That's a guess, Cooper. I'm drawing what you told me. What the door does is up to whoever built that room."

Cooper looked at the square for a long time. A small window of stars, cut in the frost by a woman's finger, on a dying ship in the middle of nowhere. It was the most hopeful thing anyone had shown him in years. He didn't say so.

"She'll know it," Brand said. "The knock. If you ever get to knock on her door again."

"She'll know it." He found he was smiling a little, which surprised him. "She used to pretend she didn't. So I'd have to say it was me and not Tom coming to steal her stuff."

He took out the cracked watch and turned it so she could see.

"I gave her one like this. I kept the other. We were going to compare them when I got back."

"Did she keep it?"

"She kept it."

From the helm, without turning around, TARS said: "You never talk about Tom."

Cooper didn't answer right away. He thought about a porch, and a young man on it with his hands in his pockets, and a long run of messages that got shorter and further apart, and the last one, where Tom said he was letting him go.

"Tom let me go," he said.

TARS left it there. Brand looked at Cooper, and then out at the stars through the little square she had drawn.

⁂

The array console was a mess.

Cooper had looked at it every day since the heavy field and found reasons not to touch it. The housing was cracked across where Kane had been thrown against it, a dark split running corner to corner. The palm panel at its center was dead. Somewhere underneath, he knew, the cables would be cooked.

"At the end, we'll need the array," TARS said.

"Nobody can run it. You said."

"It runs off the reactor, not what's left of the cells. I can run its power and its math." TARS tilted toward the dark palm panel. "But not its touch. It answers to a hand that can feel the gradient. It answered Kane because years in the field had changed him."

He pivoted toward the Nest. Toward Brand, strapped in beside it.

"By your body's clock," TARS said, "you've spent more than a week beside the center of it."

Brand looked down at her wrist.

Cooper was already pulling the tool kit out of the locker.

He got the housing open. Cables spilled out, burned black at the ends, the insulation bubbled. He went to work: cut back to clean copper, splice, seat, test. His taped palm complained every time he closed his hand. He let it. TARS passed him tools one at a time with his good arm, often before Cooper had finished asking. Cooper's breath fogged in the open housing and froze in tiny crystals on the cold metal.

"Cutter."

TARS passed it.

"Light."

TARS angled his own lamp into the housing.

"Hands."

"Between us we have three," TARS said. "You're holding two of them."

It took two hours. When he seated the last connection his fingers were numb to the second knuckle. He closed the panel and sat back.

The palm panel stayed dark.

Brand unstrapped from beside the Nest and floated over. She looked at the place where Kane's hand used to go, the faint worn shine on the plate where his palm had rested for years. She didn't hesitate long. She laid her own palm flat on it.

The air around her hand rippled.

Cooper saw it clearly. A slow ripple spreading out from her fingers through the air itself, like the surface of a pond touched from underneath. It reached the edge of the console and faded.

Brand gasped and snatched her hand back. She stared at it. She flexed the fingers.

"I can't feel them," she said.

"Brand," Cooper said.

"It's all right." She was flexing them still, watching them, a scientist observing her own hand. "It's coming back. Pins and needles. It's coming back."

She put her hand back on the panel.

This time the panel lit under her palm. A low hum ran up through the console, the hum Cooper had felt through the deck the first day at Saturn, and on the screen above it a line of text came up: GRADIENT HOLD: ROUTE.

The array was awake. It was answering her.

Brand stayed very still, feeling it. Her face had gone inward, listening to something neither of them could hear.

"He felt this," she said quietly. "For years. Every day."

Cooper thought of a dark bridge, and five shrouded chairs, and an old man talking to them so nobody would disappear.

"Kane swore he wasn't going through the wormhole," he said. "Back at Saturn. Swore it up and down. Then he came anyway."

Brand looked at him over the lit panel. Neither of them said the rule. Neither of them had to.

Chapter Twenty-Three

The Shear

⁂

She took the array console because there was no one else to take it.

That was how she put it to herself, strapping in at the starboard station with her hand on the array's palm plate, which glowed faintly, as it had under Kane's. The truth was messier. The truth was that when she took her hand away, even for a minute, she missed it. The hum. The faint pressure in the bones of her hand, the sense of a slope under everything, a direction that the whole ship was leaning toward. Kane had lived with that for years. She had had it for a few hours, and it was already hard to remember what the world had felt like without it.

She made a note of that, too. Dependency. Onset rapid. She didn't like the note.

At the center of the panel, under its red hinged guard, sat the switch Kane had reached for. She found her free hand resting on the edge of the guard, and for one second, with the slope leaning under everything, she understood him. She took the hand back and held it in her lap.

The bridge, forward to aft: TARS at the helm, his dead arm webbed to his frame, his good arm on the controls. Beside him, CASE dark on his mount. Cooper strapped in at the central console where he could reach anything. Her at the array. Behind them all, the Nest on the rear bulkhead, and the driver Cooper had let go of still resting against its casing, held there by a pull nobody could see.

The status ring flared.

"Eight," she said. "Seven—"

The engines slammed.

Far too early. Nobody was braced. The burn threw her sideways against her straps and her head cracked against the console edge and the world went white for a second. Cooper's head snapped back against his seat. Everything loose on the bridge exploded aft at once, tools and bulbs and a ration wrapper and the coffee cup with its lid, and the hull groaned, a long deep sound.

The engines cut.

"What happened?" Cooper said.

"I burned early," TARS said. He sounded uncertain. "CASE knew when. I only know where. I've been estimating from his last intervals, and the intervals have changed."

Brand touched her temple. Her fingers came away wet and red.

"The count doesn't work anymore," she said.

She had known it would come to this since she'd laid the ticks over the route. The gap between pulse and burn had been shrinking for days. Eight. Seven. Six and a half. CASE had been judging it each time, starting a little sooner as the shears widened. Without CASE, there was no one to judge it.

The ring flared again. Almost on top of the last one.

She didn't count.

She closed her eyes instead, and kept her palm on the plate, and listened.

⁂

On the Endurance, a long time ago, she had stood in front of Cooper and Romilly and argued for a planet. Edmunds' planet. She had told them the numbers were close and she had told them the truth, which was that she wanted to go there because she loved him. She had said that love might be a thing that meant something, that might be pointing at something they didn't understand. And she had watched Cooper decide that she was letting her heart choose, and overrule her, and turn the ship toward Mann.

She had been right. It had taken her a year and a half alone on that planet to let herself think it, and no one had ever told her so. She had been right, and she had been overruled for feeling something, and she had spent every day since then making sure she never chose anything that way again. Data. Logs. Numbered lines on a tablet. *Trust the data,* she had told Kane at the foot of a ramp.

There was no data now. There was a pressure behind her eyes, and the taste of a coin, and a slope under her hand that was getting steeper.

Someone on the stairs.

She felt the footsteps come. Felt them come closer. Not yet.

"Wait," she said.

TARS waited, his good arm on the throttle.

Closer. Not yet. Her hand on the plate had begun to buzz, the fine numb buzz of a limb going to sleep, and under it the slope tilted and tilted.

"Wait."

The knock.

"Now."

TARS fired.

The burn landed clean. The ship leaned into the thrust just as the slope under her palm was steepest, and then the slope slid away behind them.

She opened her eyes.

Through the aft camera, behind them, a shear rolled through the space the ship had just left. So close that the last thin haze of the ship's exhaust rippled in it, bending as the stars bent, and springing straight again as it passed.

Cooper was staring at her.

"How did you—"

"Don't," she said. "Don't make me think about it. Just let me do it."

After that she stopped watching for the ring at all.

She heard the stairs. Footsteps, coming, faster each time, and she waited until the last one and said the word, and TARS fired. She didn't open her eyes. She didn't need the display. Somewhere far off she could hear Cooper reading numbers to TARS in a low steady voice, fuel and attitude and hull temperature, the voice of a man flying a checklist through bad weather, and she was grateful for it.

"Now."

TARS fired.

"Now."

TARS fired. The ship lunged and lunged. The burns were coming so close together the engines barely cooled between them. Her arm on the plate had gone numb to the elbow. Her lips were pressed tight. Her whole body had become a single instrument, listening.

"The next one we can't outrun," TARS said.

She heard him from a distance. "Why?" she said.

"It's too wide. Wider than the ship can move in the time we have. Whichever way I burn, it crosses us. And it's coming in broadside."

"Then what?" Cooper said.

"We ride through it."

Brand opened her eyes.

Her free hand had gone flat to her chest, over the pocket with the recorder in it. She didn't remember moving it. Kane's hand used to go there.

She looked down at the panel under her other hand. She thought of a drop of water hanging in the air of this bridge, trembling, being pulled long and thin at the waist by a force nobody could see. Kane's palm on this same plate. The drop stretching to the very edge of tearing, and then his hand lifting, and the drop snapping back round and whole.

"Like the drop," she said.

She pressed her palm down hard.

The array's hum climbed into a deep, steady note. She felt it in her chest, in her back teeth. The air on the bridge thickened, not heavy, not like the circle that had killed Kane, but dense, every loose object in the room slowing in its drift as though it were moving through syrup.

"Hold on to something," she said.

The shear hit.

⁂

The bridge stretched.

She saw it happen and couldn't make sense of it and then could. TARS at the helm drew away from her, not moving, the deck between them simply getting longer, the helm and the forward window and the frost on it receding down a corridor that hadn't been there a second ago. Cooper at the central console stretched along with everything else, thin and tall, his mouth open on a word she

couldn't hear. Her own arm on the panel looked a meter long. The hum of the array was the only thing that stayed the same size.

She held on. She didn't know what she was holding, only that the plate under her hand was pushing back against something, and that if she let go of it, the ship would keep stretching until it came apart, the way the drop would have torn in two.

She held on.

Then everything snapped back.

⁂

Outside, there was no sound.

Lazarus stretched like Kane's drop of water. Its long spine drew out, longer and thinner, its four remaining petals pulling out into bright blades, the whole ship becoming for a moment a narrow shining needle laid across the stars.

It held.

Then it sprang back, almost into its shape, and the shear rolled on past it into the dark.

⁂

Every alarm on the ship went off at once.

Red light everywhere. Tones stacked on tones. TARS's voice came through it all, fast and even, the voice of a machine sorting a fire into piles.

"Hull breach, compartment six. Sealed. Power bus two, down. Air recyclers, down. Restarting." A pause. "Helm offline." A longer pause. "Back."

Brand's palm was still on the panel. Her whole arm was shaking. She couldn't make it stop.

Then Cooper said, "The Nest's out."

She turned her head. On the rear bulkhead the frame's display had gone black. Its power light was dead. Only the Nest's own green ring glowed, faint, on its internal reserve, the way it had glowed in the habitat on Edmunds the night she lay down in the chamber.

"Get it back," she said.

"Working," TARS said.

Seconds. She couldn't take her hand off the array. She knew without knowing how that if she did, whatever was holding the ship together in the wake of the shear would let go. So she stayed where she was and stared across the bridge at the black display, and the frozen cells inside the Nest began, in her mind, to warm. She knew the curve. She had watched it on a screen with nine minutes to spare. She knew exactly how long they had before warming became thawing and thawing became the end.

A minute. The frame stayed dark.

"TARS."

"Working."

Two minutes. Cooper unstrapped and pushed off aft and got his hands into the Nest's service panel, swearing steadily under his breath. Three.

"Nest restored," TARS said. "It was down four minutes."

The display lit. The power light came on. Brand found she couldn't speak. She tried twice. The second time something came out.

"Viability?"

The display ran its checks. It took a long time. It probably took ten seconds.

"Unchanged," TARS said.

Brand stared at the Nest.

"Four minutes without power," she said. "And nothing. Not a fraction of a degree."

Cooper floated beside the Nest with his hands still in the panel. He was looking at the readout as if it had told him a joke he didn't get.

"Something's keeping them," he said.

Frozen cells couldn't feel anything. They couldn't know anything, or warn anyone. She had told herself that since Edmunds. It wasn't the cells, she thought. It was the place they were sitting in. Four minutes on the bridge clock, with the pulses coming almost on top of each other, was a full day at the center of this, four times longer than the Nest could hold its cold, and it hadn't warmed by a single degree. Something out there was holding them, the way she was holding the array.

"Something else," TARS said. "Lazarus is breaking up. The breach in six is holding, but the spine took more than the hull did. Whatever happens at the end of this, the Nest won't survive the trip home."

Brand looked at the Nest. At the green ring, still lit. At the driver resting against its casing, held there.

She had kept them alive. That had been the whole job. It occurred to her, for the first time, that she might not be the one keeping them alive at all.

⁂

The alarms fell quiet one at a time.

The last one stopped and left a silence behind it so complete she could hear the blood in her ears. No pulse came. She waited for the footsteps on the stairs and there were none. Her hand on the plate felt the slope underneath, still there, steeper than ever, but quiet now.

The shears had stopped.

She lifted her head and looked forward, the whole length of the bridge, to the window. The frost had grown into a thick white frame. Cut into the white, the little square she had drawn for Cooper was still there, a small clear window.

Through it, the smeared stars had cleared.

Chapter Twenty-Four

The Seam

⁂

Cooper unstrapped and pushed off toward the window, because he had to see it with nothing in the way.

He caught the frame beside the glass and hung there with his face close to the cold, and looked out, and for a while he couldn't think of anything at all.

There was a seam in the sky.

It ran across the stars from one edge of the window to the other, and past the edges, as far as he could crane his neck to follow it. A long dark line, darker than the dark around it, darker than anything he had ever seen, and edged on both sides with a thin thread of light, pale gold, the color of wheat at the end of a long day. It wasn't a crack. It didn't look broken. It looked made, the way a seam in a coat is made, two pieces of something joined so carefully you'd only see it if you knew to look.

The stars near it were wrong. As they came close to its edges they bent toward it, their light drawn out into short bright curves, as if the seam were pulling at them, gently, all the way along.

He had seen something like it once. A fissure in the hills on Edmunds' world, a dark line in pale rock. Brand had sent a machine walking into it, and it had come out full of something it couldn't say.

This was that. This was the same thing, only it was the size of the sky.

⁂

Lazarus hung before the seam, very small. Its spine was bent now, a long shallow curve where the shear had stretched it and it hadn't quite come all the way back. Four petals out of five. A dark scar on its flank where compartment six had opened and sealed. Its running lights were off. Its engines were cold. It had come farther than any ship had ever come, on a route drawn by a machine that had gone dark to get it here, and it hung there now in front of the seam like a moth in front of a lit window, and the seam was so large that the ship had no size at all.

⁂

"We're here," TARS said.

Cooper turned from the window.

At the back of the bridge the Nest pulsed. Then again. Then again, faster, the green status ring flaring and draining and flaring, the pulses coming so close together that they ran into each other, until there was no space between them at all and the ring simply glowed. One steady green light.

Brand was looking at it from the array console, her palm still on the plate.

Cooper looked back at the window.

The seam was bending.

Slowly. It took him a few seconds to be sure. The long straight line across the stars had begun to bow, the middle of it drawing in toward them, the thread of gold light along its edges curving with it. Toward the ship. He moved his head and followed the line of the bend in his mind, through the window, through the bridge, the whole length of it.

To the back of the bridge. To the Nest.

"It's doing it," Brand said, low. "It's doing what the shears did."

Around the Nest, the air had begun to brighten.

It was a soft light, and it came from nowhere. Not from the Nest's display, not from any lamp. It was simply there, in the air around the Nest, the way morning is there before the sun is up. It lit the rear bulkhead and Kane's empty straps and the driver resting against the Nest's casing. On the display, the readings, which had been jittering since the shear, settled one after another into perfectly steady lines.

Brand couldn't look away from it. Cooper watched her not look away. Her hypothesis, he thought. Happening in front of her. He'd seen that look before, on Murph, ten years old, the morning the dust lay in lines across her bedroom floor and he told her there was a law behind it, not a spirit.

"It's forming around them," Brand said.

The light thickened.

"It's theirs," she said. She turned her head, at last, and looked at Cooper. "Whatever this is, it opened for them. It came for them. Not for us."

Cooper looked at the light. At the Nest. At the seam, bowing toward them through the window.

"I don't want all of it," he said. "One moment. One room. Murph's office, on her birthday, the day she sent the message. Long enough to knock."

"It doesn't go there," Brand said. "It goes where it's going. To the center, for them. It isn't a road, Cooper. Whoever built it isn't going to open a door for you."

"No," TARS said. "Nobody is."

He turned from the helm, toward Cooper, and held there.

"So we break in," TARS said. "I've been inside one of these before. I recorded all of it. Every face of that room, every angle, how it folded. I know where its walls join, the way you know where the studs are in a wall you framed yourself. It isn't built for us. It doesn't have a door for us. But anything that's put together has seams, and I know where the seams are. Ride it in. Before it closes, find the right wall, and force it. A door it never meant to make, to a place it never meant to go."

"You're talking about picking a lock," Cooper said.

"I'm talking about kicking one in. It won't want to stay open. Someone will have to hold it."

Cooper looked at him: one arm webbed to his side, his frame scorched, his casing split, a machine that had been through a black hole and a heavy field and a shear and come out of all of them still wanting to tell him something useful.

"Will it work?" Cooper said.

"Possibly."

"That's not a yes."

"It's the most honest answer I have. I'd rather give you that than a lie at a high setting."

Brand was still looking at the light. "You'd be stealing it," she said quietly. "From them."

"Borrowing," Cooper said.

Something moved at the corner of her mouth, tired and almost fond. "Then give it back."

The light around the Nest grew brighter.

The air rippled in it now, the same slow ripples Cooper had seen spread from Brand's palm on the array, but wider, folding outward from the Nest through the whole back of the bridge. The driver that had rested against the Nest's casing since the night of the knock came loose. It drifted toward the light. Slowly, and then faster. It turned once, end over end, catching the glow on its handle, and then it went into the brightness and wasn't there anymore.

At the array console, Brand made a small sound. Cooper turned.

Her palm was flat on the plate. Her arm was shaking from the shoulder down, a hard steady tremor, and her face had gone white. Each time her hand shifted on the plate even a little, the light at the back of the bridge flickered, dimmed, steadied.

"I'm holding it," she said.

"Holding what?" Cooper said.

"The opening. It wants to close. Or it wants to open all the way and take everything around it. I can't tell which. I'm holding it in between."

"How long?"

"I don't know."

Kane had said it. Sitting on a bunk in the pressure cabin, with his eyes wet and his voice gentle: *It doesn't take what's near it. It takes what it's for.* And he had been right about that much. He'd been wrong about the rest. He'd thought the only answer was to keep it from ever getting them, and he had died at a switch trying.

At the helm, TARS unlocked his base from the deck.

Cooper heard the magnetic clamps let go, two soft clicks, then the cable pulling free of the helm, and knew what it meant before TARS moved.

TARS pushed off from the helm and floated aft, the length of the bridge, past Cooper, past Brand at her console, to the rear bulkhead. The light lay on his scorched frame and turned it gold. With his

good arm he released the Nest's locks, one, two, three, and pulled it free of its frame and drew it in against his chassis and held it there.

"TARS," Cooper said.

TARS turned toward the light with the Nest held tight against him.

"If it has to come for them, it takes the ship with them," he said. "Brand can't hold it forever. The ship can't take much more. So I'll take them to it."

He turned back toward Cooper. Just for a moment.

"The door was a maybe," he said. "The ship going in with them isn't. I won't trade you for a maybe."

"Stay, Cooper," TARS said.

And he pushed off into the glow.

The light took him slowly. The way the field had taken Kane's drop of water, drawing him out, softening his edges, his dark frame stretching into the brightness, a long shape and then a faint one. The green of the Nest went with him, a small steady spark at the heart of it, and then that was faint too.

Cooper hung beside the central console with one hand on a strap.

He was back above Gargantua, watching TARS's craft drop away first. Watching him go, and going after him, and spending every hour since trying never to need anyone that much again.

Next time, you go, TARS had said at Saturn. And out on petal four Cooper had gone, whatever TARS had to say about it.

He let go of the strap.

"My turn," he said.

Brand looked at him from the array, her palm pressed to the plate, her whole arm trembling. The light was on her face. She looked very tired and very young, and for a second he saw the woman on the Endurance who had told him love might be point-

ing at something none of them understood, and whom he had overruled.

She'd been right. He had never told her that. He didn't have time to tell her now.

"Nobody goes in alone," Brand said.

"Go."

There was no count. There was no warning, no ring, nothing to wait for.

Cooper put his boots against the console and pushed off, and went down the length of the bridge into the light after TARS. The glow came up around him, warm, soundless, brighter than anything, and the last thing he saw over his shoulder was Brand at the array with her hand flat on the plate, holding the door open behind him.

PART FIVE

The Door

Chapter Twenty-Five

Moments

⁂

Light. Then not light.

Cooper drifted. There was no ship around him. No walls, no deck, no window. No up. For a moment there was nothing at all, and he hung in it with his heart going hard and his hands open, and he thought, very clearly, what you think in the first second of a spin: *don't panic. Find a reference. Anything.*

The dark began to take shape.

It came in layers, the nearest first, like ground coming up out of the dark under a plane at dawn. A faint edge. Another behind it. Then more than he could count, and he understood he was looking at rooms.

Hundreds of them. Thousands. They went away from him in every direction, above and below and on every side, each one a box of soft light hung in the dark with nothing holding it up. Their walls were clear as glass, so that he could see through the nearest into the ones behind, and through those into the ones behind them, rank after rank, until far off they blurred together into a haze, like the lights of a city seen from very high. There was no sound. There was only the light, and every room had its own.

That was the first thing he truly saw. The colors. No two rooms were lit the same. One glowed the brown of a dust storm at noon. One the hard white of a hospital corridor. One the pale gold that Saturn throws across a hull. One the soft red of a ship's bridge at night. Each room was lit by the light of its own day, and he knew without being told that each one was a moment. That this was what a moment looked like, from outside.

He had been somewhere like this before. He had fallen through a black hole into a room made of time, and seen one little girl's bedroom from every side at once, every hour of it laid out like the pages of a book that had been taken apart. This was that, grown huge. Not one room. All of them.

Inside the nearest ones, things moved. When he looked at a room, its moment stirred, and ran a little way forward, and eased back, like someone breathing in their sleep. A field of corn bent under a wind he couldn't feel, and straightened, and bent. A dust storm rolled across a plain, a wall of brown taller than the sky, and never arrived. A woman slept at a desk with her cheek on her arm, and a strand of her hair lifted and fell with her breath. A ship tumbled end over end above a ringed planet, trailing fire, its long panels flashing as it turned. He knew that one. He had seen it in his sleep ever since the tesseract. His shoulder brushed its wall as he passed, and the whole room shivered, a ripple running out through it toward the rings.

Far ahead, deeper in, past all of it, the rooms grew brighter. And in that brightness, a small dark shape drifted, and at the center of the shape was a single spark of green.

TARS. The Nest held tight against his frame.

Cooper reached out and found that he could pull himself along the edges of the rooms, the way he'd pulled himself along the hull. There was nothing to hold, and it held anyway. The edges were cool under his hands and very faintly alive. He went hand over hand

after the green spark, and the rooms slid past on either side, close enough to touch, each one throwing its own color across his hands as he passed: dust, then white, then gold.

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He passed a room so dim he nearly missed it. Pale blue, the cold blue of Edmunds' world before sunrise. A small room full of machines shut down for a long sleep. A green status ring glowing in one corner. And a long white chamber with frost on its lid, and under the frost, very still, a face he knew.

Through the room's one window, far off across the plain, a figure in a white suit was walking toward the habitat. He knew that walk too.

He put his knuckles to the wall of that moment and knocked. Two, then one. Somebody ought to wake her before that man reached the door. She'd want a minute to find the wrench.

He passed another, lit amber and low. A dim stretch of corridor, the strips burning at a third of their strength, pipes running off overhead into a dark that had no ceiling. A woman halfway along it, one hand on the rail, pulling herself toward a small lit window at the far end. Brand, the night Kane died. Alone, and frightened, and telling herself she wasn't.

He didn't stop to think about it. He put his hand to the wall of that moment, beside her, and knocked. Two, then one. Gently, the way you knock to tell someone they aren't alone.

Ripples of light went out from under his knuckles and through the amber, and he saw her stop. He saw her hand go flat against the wall where his had been.

He passed one more, and the light from inside it fell across the side of his face, and the light was green.

It was a small bare room. A test bay: metal walls, a single heavy door, a console in the middle with a palm plate set into its top, glowing up from below. The alarms on the wall were dark. The room had been torn through by something and then left, and everything in it was still drifting from the tearing: a clipboard turning slowly end over end, a pen, a cloud of tiny bright beads of spilled coffee, each one carrying a speck of green in it like a seed. Everything hung in the air the way things hang after a long noise has stopped.

In the middle of it floated a man.

He was younger. His hair was still dark. His glasses had been knocked crooked and he hadn't put them right. His hands were at his sides, open. His face was lit green from underneath by the plate on the console, and it was the face from the tesseract and from the bridge at Saturn, with forty years taken off it.

Afraid.

Kane's lips were moving.

Cooper couldn't hear him. He didn't need to hear him. He knew every word, and the order they came in, and the length of the pause after each one.

Reyes.

Okafor. Lindqvist. Melanson. Dunn.

Then the waiting. The space after the last name, held open for an answer, the way Kane had held it open every day of his life after this one, on a dark bridge and in a corridor and on a bunk behind a steel door.

Nobody answered.

Cooper touched the wall of the moment. It was cool and faintly giving, like the skin of a drum.

So that's who it was, he thought. *It was always going to be me.*

He knocked.

Twice, close together.

He waited. Not long.

Once.

Where his knuckles touched, the wall shivered. Three faint ripples of light spread out across it, one inside the other, and passed through into the room, and went over the young man like a breath of air.

Nothing happened.

The clipboard turned. The coffee drifted. Kane's lips stayed parted on the last name. Cooper kept his hand where it was.

Then the young man's head came up.

He looked toward the sound. Toward the wall where Cooper's hand was, though he couldn't have seen anything there. His lips closed. The drifting coffee beads turned in the green light around him, and he didn't see those either. And his face changed. The fear didn't leave it, exactly. It moved over, made room. What came in beside it Cooper had seen only once before, on the floor of a bridge, in the second before the old man's eyes went still.

Somebody answered.

Cooper took his hand away. He looked a moment longer. Then he went on after the green spark, and didn't look back, because there wasn't time, and because he thought Kane would have told him not to.

⁂

The light ahead grew.

The rooms changed as he went deeper. Out at the edges they had hung square and still. Here they leaned. All of them, every room for as far as he could see, tilted the same way, gently, like reeds in a slow river. They were leaning toward the center. The nearest ones were drawn out long, their light streaming out behind them toward the dark, and the moments inside them ran faster, flickering, a whole afternoon going by in the time it took him to pass. He was in the

gradient now. He could see it. Brand had felt this for hours through the palm of one hand, and here it was laid out in front of him like weather.

TARS had slowed. His frame was turning a little in the brightness, the Nest held tight in his good arm, and the light lay over both of them.

Cooper reached him and got a hand on his frame.

"TARS."

TARS turned. "You were supposed to stay."

"Deal's a deal."

"That was not the deal," TARS said.

"It was the way I remember it."

Ahead of them lay the brightest light of all.

Cooper couldn't look straight at it. It wasn't a sun. It didn't burn, and it threw no shadows. It was white at the heart and gold at the edges, and it was not still. Slow folds moved through it, like heat over a runway in July. Every room in that whole enormous dark was leaning toward it. It was the bottom of the hill, the place the whole opening had been running toward all along. And the Nest was leaning toward it too. He could feel it through TARS's frame, a gentle, steady pull, the Nest straining a little against TARS's arm. Its green ring had brightened. It was brighter than he had ever seen it, as if something inside it had heard its name called from a long way off and was answering.

The radio on TARS's chassis crackled. A voice came through it, faint and strained, from very far away.

"TARS. Can you hear me?"

Brand.

"Yes," TARS said.

"Is it pulling them?"

"Yes."

The radio went quiet. It was quiet for a long time. Cooper pictured her at the array console, her palm on the plate, her arm shaking, looking across the bridge at the empty frame and the loose straps.

When her voice came back it was very steady. It was the steadiest he had ever heard it.

"Let them go, TARS."

TARS tilted down toward the Nest against his frame. Then back up, toward Cooper.

Cooper didn't answer. He thought of eighteen months alone on Edmunds' world, keeping them cold. Nine minutes to spare. A strap cut into a wrist, holding on while the hatch tore everything else away. She had never once let go of them.

"They were never ours," Brand said.

TARS unlocked his arm.

The Nest drifted free. Slowly at first. It hung beside them for a moment, its green ring glowing, steady and calm, the way it had glowed in the corner of the habitat on Edmunds and on a sled on the plain and on the back wall of the bridge through every burn. Its light lay green across TARS's display and across Cooper's hands. Then it turned, catching the light, and began to move away from them.

It went down the long slope toward the center, and as it passed the leaning rooms, each one took a little of its green. One after another they flickered as it went by, a gust of green running through their light and fading. A trail of it, going away. Smaller. Smaller. Until the Nest was a single green point against all that white and gold, like a star a long way off.

Near the center the leaning rooms fell into line. For a breath they stood in ranks along the green thread, edge behind edge, stacked like shelves, and the last of them was a child's bedroom in dusty farm light, with a gap on its bookshelf where a book had fallen.

Cooper knew that shape. He had hung behind those shelves once, pushing her books out onto the floor. Then the line broke, the rooms leaned apart, and the Nest was gone.

Cooper and TARS hung there in the quiet.

"Are they gone?" Brand said.

"They're gone," TARS said.

On the radio, very faintly, Brand breathed out. That was all. Just a breath. Cooper thought he had never heard anything so tired.

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The bright light began to fade.

The pull went slack first. The leaning rooms eased, and straightened, and hung square again, the long streaming ones drawing back into their shapes. Then the rooms began to dim, one here, one there, their light going out like windows in a town at night: the dust-brown, the gold, the hospital white. The dark between them grew wider than the light. The opening had taken what it was for.

TARS turned in the fading light. Not toward the way out. Toward the wall of moments.

"It's closing," he said. "If you want her door, it's now."

Cooper looked at the wall. Rooms on rooms, going dark. A field of corn. A ship. A woman at a desk. None of them the room he had come for.

"There is no door," he said.

"Not yet."

TARS's display flickered. Lines of light ran across it, then a curve, rising and falling, and Cooper knew it. He had seen it on a terminal in a habitat on Edmunds' world, laid beside CASE's curve, the two of them matching. TARS's record of the inside of the black hole. Every face of the room he had fallen through, every angle,

how it had folded. The thing TARS had carried out of Gargantua and kept, as he kept everything.

"This is what the map is for," TARS said. "Hold on to me. We're breaking in."

TARS reached out with his good arm and laid the flat of it against the wall of rooms.

The wall shuddered.

Cooper felt it through the nothing he was floating in, a long deep tremor, like a building settling. Light cracked along the wall under TARS's arm, a hairline first, white and very thin. It ran. It turned a corner, and another. A seam. Then a rectangle. Then a door, where there had been no door, its edges shivering like something held open against its will. Through it came a light that wasn't like any of the others: plain, ordinary daylight, a little dusty, the color of an afternoon in a room with the blinds half drawn.

TARS's frame groaned. One of his joints locked with a sharp bang. Sparks drifted from the split in his side and didn't fall, just hung there, glowing, and went out one by one. He didn't move his arm.

"Cooper," he said. "The door."

Cooper looked at him. At the scorched frame and the webbed dead arm and the one good arm braced against the whole of time, holding it open. The daylight from the door lay along his side.

Every scar on that frame, Cooper could have named. Most of them had been taken for him. The light blurred, and he blinked until it cleared.

His voice cracked. "I'm not leaving you."

"You aren't."

The door shivered. TARS held it.

"I'll be here," TARS said.

Cooper looked at him a moment longer. Long enough to know he was memorizing it. Then he turned toward the shivering light, and went.

Chapter Twenty-Six

Murph

⁂

On the other side of the door there were more rooms.

Fewer. Smaller. They were stacked close around him, closer than the others had been, and they were lit warmer, and he knew before he looked into any of them whose they were. All of them hers.

A girl of ten at a window, her forehead pressed to the glass, watching a dirt road. A girl of thirteen on her bed with her back to a shelf, very carefully not looking at the watch that sat on it. A young woman bent over a desk covered in paper, her hair falling across her face, a pencil in her teeth and another behind her ear. A woman asleep in a chair, a screen glowing beside her, its light on her cheek.

He moved past them. There were so many. He wanted to stop at every one. He wanted to put his hand on the wall of the girl at the window and knock, and tell her he was sorry, and that he'd seen her, and that she didn't have to wait there anymore. He didn't. He didn't know what a knock would do to a ten-year-old, and he didn't have time, and that wasn't the one.

He knew which one it was.

He stopped at it.

Her office. Daytime by the clock, gray light from the panels overhead. A desk buried in papers, and a screen on the desk with its small red recording light just gone dark, and one of her hands still resting flat against the screen, where her face had been. A birthday card, propped against the screen, the cheap kind, folded once. A woman sitting in front of the screen with her back to him, very still, her shoulders up, the way shoulders go when someone has just said a hard thing out loud and is waiting to see if they'll cry.

On the windowsill behind the desk, a small glass jar. Something tiny and metal in the bottom of it.

Cooper knew this moment. He had watched it from the other side, on a screen, in the comms bay of the Endurance, twenty-three years of messages piled up and this one waiting at the end of them.

He raised his hand to the edge of the moment, to the place where a door would be.

He knocked.

Two, close together. A pause. A third.

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The woman at the desk went still.

She knew that knock before she turned. He saw her know it. He saw it go through her back and her shoulders and down her arms to her hands, one on the desk, one still on the screen, and saw her not believe it, and believe it, and not want to turn around in case she was wrong.

She turned.

Murph.

The age he had been when he left. Tired. Her eyes red from the message she had just finished recording. Her hair pulled back badly, a pencil behind her ear, the way she'd always done it when she was working and couldn't be bothered. His mother's chin. Her

mother's eyes. His own frown, the one that meant *explain that again, slower.*

He had seen her old. He had held her hand when it was paper. He had never once seen her like this. He had missed this whole face.

He stood in the doorway. She sat at her desk. Neither of them moved.

She looked at him, and he looked at her, and it went on, and he let it, because he had waited years for it and so had she. Behind him, very faintly, the edges of the door crackled.

Then he took a step into the room.

He reached for her face, stopped just short, then touched her cheek.

She was real. Warm. Her cheek was wet with tears she hadn't wiped away.

Murph closed her eyes. She opened them. He was still there.

"Dad," she said.

"Hi, Murph."

She didn't move toward him. She didn't move away.

"I'm so mad at you," she said.

"I know."

She looked at him the way she had at ten, the day he left.

Her eyes went over his face, slowly. His hair. The lines that should have been there and weren't.

"We're the same age," she said.

"Give or take."

Something that was nearly a laugh got out of her. Then it was gone, and her jaw set.

Her gaze moved past him, over his shoulder, to the doorway. He knew what she was seeing. The light around the frame, shivering, not the light of any hallway at NASA.

"Why did you come?" she said.

"I made a promise to my daughter."

She looked at the card on the desk. Then at the door.

"How long?" she said.

"Not long."

She nodded, as if she had done the math years ago and had only been waiting for the numbers to come in.

"Is Brand with you?"

"Not here."

"Is she all right?"

"She's waiting for me."

Murph studied him. He watched her put it together, the way she put everything together, fast and sideways and right.

"Then what are you still doing here?"

Cooper laughed. It came out wet. He wiped his face with the back of his hand, and the cut on his palm stung, and he didn't care.

"How's Tom?" he said.

"Still on the farm. Stubborn." She paused. "Like you."

He nodded. He couldn't speak for a moment.

"I should have stayed," he said.

Murph's jaw tightened. "Don't."

"I know."

He took the cracked watch out of his pocket and held it up between them. Her eyes went to it and stayed there. He saw her see the crack in the glass. He saw her wonder what had happened to it, and decide not to ask.

"Mine's on a shelf," she said. "In my old room. At the farm." Her voice was very level. "I can't look at it."

"You kept it."

She didn't answer.

The clock on the wall behind her desk was a plain round one with a sweep hand, the kind every government office in the world has. Cooper held his watch up beside it.

The second hands swept, not quite together. His watch ran a little ahead of her clock, and as they watched, both of them, the gap between the two hands grew. A fraction. Then more.

"What does that mean?" Murph said. She knew. She wanted him to say it.

"It means I have to go."

She looked at the clocks a long moment. Then at him.

"None of this is mine," he said. He tipped his head at the doorway behind him, at the light shivering around its frame. "The door. The time. It opened for something else, and I'm riding along on it. It's borrowed, Murph. Every minute. And I have to give it back."

She looked at the doorway, and at him, and he watched her understand it.

"Then give it back," she said. Her voice shook. "Just not yet."

So he didn't. Not yet. They stayed there in her office, she at her desk and he in front of it, and let one more minute go by, borrowed, on a plain round clock.

Behind him, metal groaned under a weight it was never built for. He heard it. He stayed.

"I'm going to tell myself I dreamed this," she said.

"That's okay."

Behind him, through the door, the light flickered. He didn't have to turn to know what it was. TARS, holding the way open with one arm, his frame shuddering, sparks hanging in the air around him.

Murph saw it over his shoulder. Her face changed. Maybe she recognized the shape. Maybe she only understood that someone was paying for this.

She looked back at her father.

And she smiled.

Not the smile of the tired woman at the desk. The other one. The one he remembered from a little girl on a kitchen floor in a ring of

screws and radio parts, the morning it finally played again, a long time ago, before he ever got in the truck.

The door behind him began to close. He felt it, a pressure at his back, the room getting smaller around them.

Cooper reached toward her.

Murph rose and reached back.

Their fingertips touched.

"Go," she said.

He held her eyes for one more second. Then he turned and went back through the door, and he did not look back, because if he had looked back he would not have gone.

⁂

Murph stood alone in the room.

She looked at the place where her father had been. The light around the doorway was fading. It went thin, and then thinner, and then it was gone, and it was a doorway. Just a doorway. A hall beyond it, gray carpet, a fire extinguisher on the wall, somebody laughing far off at a coffee machine.

She looked at the clock.

It was ticking. Normally. One second after another, the way clocks do.

She touched her bare wrist, where a watch would be.

She smiled. She didn't know she was doing it. Then she sat back down at her desk, and pulled the stack of equations toward her, and found her pencil behind her ear, and went back to work.

⁂

The door was collapsing as Cooper came back through it. He felt it shrink against his shoulders, the light of it closing on him like a hand.

TARS was slumped against the wall of rooms. His good arm was still braced against it, the whole frame shaking, and sparks were spilling from the split in his side and hanging in the air around him, small and orange and going out. As Cooper reached him the arm gave way.

The door snapped shut behind them as though it had never been there.

Cooper caught him and hauled him in against his chest. TARS's lights were low, flickering, one segment and then another. Where his arm had been braced against the wall, the narrow pieces at its end had folded shut when it came away, and they did not unfold again. Every pivot in that arm had fused solid. Whatever it cost to hold a door in the side of time, that was the price, and TARS had paid it without mentioning it.

"I've got you, slick," Cooper said.

"You came back." TARS's voice was slow, frayed at the edges.

"I always come back. I'm just late."

"That's going on the record."

Around them the rooms were going dark, one by one, the corn and the storm and the woman at her desk. Through the radio on TARS's chassis, faint and breaking up, came Brand's voice: "Cooper—I can't hold it—"

Far behind them, a thin line of light. The way out.

Cooper locked both arms around TARS and kicked toward it.

Chapter Twenty-Seven

The Long Way Home

⁂

Brand did not know how long Cooper and TARS were gone.

The bridge clock said eleven minutes. It felt like hours.

She held the door.

She had both hands on the plate now. She had put the second one down beside the first without deciding to, the way you put your other shoulder to a door that's being pushed from the far side. Her arms shook from the shoulders down. She couldn't feel her fingers. She couldn't feel her wrists. At the back of the bridge the light where the Nest had been flickered every time her arms jerked, dimmed, steadied, dimmed.

The Nest's frame hung open and empty on the rear bulkhead. Its straps drifted loose in the light.

She had heard TARS on the radio say *They're gone*, and she had breathed out, and something in her chest that had been clenched for years had let go all at once. She had not expected that. She had expected grief. The grief was there too, but under it, holding it up, was something she didn't have a word for yet. The nearest she could get was the feeling of coming up out of a long cold sleep and finding that it was morning.

Then nothing on the radio. Only the hiss. Cooper had gone somewhere TARS's radio couldn't follow.

She held.

She talked to herself, a little. Numbers, mostly. The temperature on the bridge. Her own pulse, which she could feel hammering in her neck. Once, without meaning to, she said *Wolf*, and was embarrassed, and didn't stop.

The slope under her hands began to tip.

Not steeper. Away. As if whatever was at the bottom of it were letting go, the way the ship let go after a burn, the pressure sliding off, and she understood that she had held it as long as it wanted to be held, and the door was closing whether she wanted it to or not.

"Cooper," she said into the radio. Her voice came out cracked. "Cooper, I can't hold it—"

The light at the back of the bridge shrank.

Two shapes came out of it. All at once, tumbling, a man and a machine wrapped around each other, and they flew the length of the bridge and slammed into the central console hard enough to bend a rail.

Her hands slipped off the plate.

The light at the rear bulkhead collapsed to a point, a single white star where the Nest had been, and went out.

Silence.

The array's hum died away under her palms. She watched the last ripple in the air around her fingers spread, and fade, and go still.

⁂

Cooper lay against the console with TARS in his arms. TARS's lights were flickering. As she watched, they steadied.

She pushed off from the array. Her arms wouldn't work properly. She steered with her shoulders and her feet and arrived badly, and Cooper caught her with the arm that wasn't holding TARS, and then they were all three of them tangled together in the middle of the dark bridge, holding on.

Nobody let go for a while.

When she finally lifted her head, she was looking at the rear bulkhead. At the Nest's empty frame, hanging open. At its loose straps, turning in the air.

Her hand went to the dead display out of habit. Years of habit.

"Viability—"

She stopped.

Cooper was looking at the empty frame too.

"Where did they go?" he said.

She didn't know. She thought she might never know. She thought of five thousand frozen lives drifting on into a brightness she couldn't look at, toward whatever had called them, and of the green point of light getting smaller, and of her father, who had built his whole life around sending them somewhere and had never once known where. Somebody had built the room Cooper fell into at Gargantua. Somebody had set the wormhole beside Saturn for them to find. She had always pictured those people as gods, or as a future so far off it didn't matter. She thought now that every future has to start somewhere, with somebody going first.

"We don't get to keep them," she said.

She let her hand fall from the display.

"We only get to bring them home."

"Home," Cooper said.

"Wherever they were going." She looked at the empty straps. "I think that was always home. We were just the ride."

⁂

Outside, the seam was closing.

The thread of gold along its edges narrowed, and narrowed, the two sides drawing together across the whole width of the sky, carefully, like someone pinching shut a seam in cloth. Then the light was a single line. Then it was gone. The stars where it had been were only stars, ordinary and far apart, with nothing between them at all.

Lazarus hung there, battered and small. Its spine bent. Its petals torn. One strip of bridge windows lit.

⁂

The way home took five weeks. There was no channel to carry them now. The tired engines had to do it all.

There were no shears. No pulses. No status ring to watch. TARS, cabled to the helm, flew them back along the route he had recorded, in reverse, as far as Edmunds' world and then the long leg home to the wormhole. Twice in the first week something aft let go with a bang and a long groan, and TARS reported it in his sorting-a-fire voice, and Cooper went and looked, and came back, and said it would hold. Once he said he didn't know. It held anyway.

They brought the heat back up to ten degrees, because there was nothing left aboard that needed the power more than they did. The frost on the forward window melted in a day into a thin film of water that crept along the glass and gathered in beads at the frame. Her little square went with it. She watched it go and didn't mind as much as she'd thought she would.

She learned to fly.

Not the Ranger. That came later. Lazarus, from the left-hand seat, with Cooper beside her saying *gentle, gentle, it's a big ship, it doesn't like surprises*, and TARS beside him saying, "Cooper has never once been gentle with a ship. He has been lucky with several.

Don't learn the second thing." She was bad at it and then she was less bad. Once, on a correction she overdid, Cooper put his hand over hers on the stick to show her how little it took, and left it there a moment after the ship had steadied. Then he took it away. Neither of them mentioned it. She liked it more than she had expected. It was like the array, a little: listening with your hands.

Her right hand had come back slowly over the first three days, pins and needles and then a kind of dull ache, and then one morning it was simply hers again. Sometimes, at night, she thought she could still feel the slope under it, very faint, the ghost of a hill. She wrote that down.

They ate badly. Cooper made coffee every morning and lost control of it about one morning in three, and TARS commented every time, and every time Cooper said *Help me*, and TARS said *I have no arms*, and it became a thing they said instead of good morning.

And she grieved. In pieces, the way it comes. For Kane, mostly, at odd hours: the pale circle on the console where a mug had sat, which she passed a hundred times a day, the worn shine on the array plate, the empty sixth chair. For CASE, whose frame still stood bolted to its mount at the helm, tall and gray and dark. For the Nest and the lives inside it, which was the strangest grief of all, because she did not think anything bad had happened to them. She thought, if anything, that something very good had, and that she would never know what it was.

Some nights she went down the service corridor and stopped at the place where the wall had knocked. She knew now whose hand it had been. She stood there with her palm on the cold panel, and was not afraid.

On the ninth day, Cooper came and found her at the helm with a cutting torch in his hand.

"We can't take CASE," he said. "Not all of him. The Ranger hasn't got the fuel to haul his frame through the wormhole and still

brake at Saturn, and Lazarus isn't going to make it through at all. TARS has run it four ways."

"I know."

"But the navigation unit. The part of him that came back." He held up the torch, not quite looking at her. "I can cut it out of the frame. It's not big. It'd ride in a seat."

She looked at CASE. The cracked panel. The dead arm folded against his side. The dark place where his amber light had been.

"Yes," she said. "Do that."

She stayed while he did it. She held the light. TARS stayed cabled to the helm the whole time, close enough to feel the torch through the deck, and didn't turn toward it once. When the unit came free he said, "Mind the connector on the back. He's particular about it," and then nothing else for an hour.

⁂

On the nineteenth day they were sitting at the forward window, the two of them, with TARS at the helm behind them, and Cooper said, without looking at her:

"She's gone, Brand."

She waited.

"Murph. She was dying when I left. In a bed on Cooper Station, with all her family around her, and she told me to go. She'll be gone by now. She's been gone a while." He was looking out at the stars. His voice was quite steady. "I never said it. I couldn't. I thought if I said it out loud, that was it, it was done, it was behind me on the line. And as long as I didn't say it—"

"There was still a door," Brand said.

"Yeah."

"And now you've been through it."

He was quiet. Then: "Now I've been through it."

She didn't ask him what had been on the other side. She thought she would hear it someday, or not, and either was all right.

"I know she's gone," she said gently. "I've known since Edmunds. You looked at the floor."

He laughed, a short surprised breath, and rubbed his eyes with the heel of his hand.

They sat a while longer. Out the window the stars stood still now, nothing smeared, nothing bending, only distance.

"If there were a way back in," Cooper said, "I'd hold it for you."

"I know." She kept her eyes on the glass. "I thought about my father every second I was holding it."

"Would you have gone?" he asked.

"No. All we'd talk about is the lie. That's not the goodbye I want. I already have mine."

"You were right," Cooper said.

She turned her head.

"On the Endurance. About Edmunds. About—all of it. What you said, about love pointing at something." He didn't look at her. "I overruled you. You were right."

Brand looked at him. Years had gone into not hearing those words, and into deciding that she didn't need to.

"I know," she said. And then, because it was true, and because she found that she wanted him to know she knew: "It took you long enough."

⁂

On the thirty-fourth day the wormhole came into view: a small bright sphere ahead of them, a ball of bent starlight, the whole sky folded into it and turned around.

They parked Lazarus a few thousand kilometers short of it, holding station in the empty dark.

They moved what they needed into the Ranger. Food. Water. CASE's navigation unit, wrapped in a thermal blanket and strapped into the seat behind the pilot's. Kane's recorder, in her pocket, where it had been for weeks.

Before they undocked, Brand went down the service corridor one last time, alone, past the amber strips, to the pressure cabin, where they had laid Kane.

She knocked on the door. Twice, plainly.

"We're taking the Ranger," she said to the steel. "Your ship's staying here. You said you came to bring it back in one piece." She put her hand flat on the door. "It's in pieces, but it's here. It brought us all the way. I thought you'd want to know."

She went back to the bridge. Cooper and TARS were already in the Ranger. She could hear them over the comm, going down a checklist.

"Pilot."

"Brand," TARS said.

"Co-pilot."

"You."

"And you?"

"Cargo."

"Self-loading?"

A pause. "Not anymore."

Over the comm she heard Cooper laugh.

She stood in the middle of the bridge, by the central console, with the six chairs around it.

She hadn't planned this. She found she didn't need to.

"Reyes," she said.

"Okafor. Lindqvist. Melanson. Dunn."

She looked at the sixth chair.

"Kane."

She waited. The way he used to. Long enough for every name to have its turn at the silence.

"All present."

She left the bridge lights on. There was no reason to, and no one to see them. She left them on anyway. Somebody should.

⁂

The Ranger dropped away from Lazarus's flank with a soft mechanical cough. Brand was in the pilot's seat. Cooper was beside her. TARS was strapped in behind them, one arm webbed to his frame, the other, its pivots fused solid for good, resting on the thermal blanket in the seat beside him, on CASE's navigation unit. CASE's light was dark.

Cooper looked back at the bundle, and at TARS's fused arm.

"He comes home too," TARS said.

Through the window, the wormhole grew until it filled the glass, its surface folding the stars, every star in the sky bent into it and shining out of it at once.

In the rear camera she could see Lazarus. A small gray shape with one strip of windows lit. Somewhere inside it, behind a steel door, Kane, home with his ship.

Then they went into the lens, and there was no sound at all.

⁂

On the other side, Saturn, filling the window.

"What happens now?" she said.

Beside her, Cooper was looking out at it too.

"We find out," he said.

Chapter Twenty-Eight

The Box

⁂

A light flashed on the communications panel.

Cooper knew that light. It was the same small amber light that had blinked at him on the way out, months ago by his clock and who knew how long by anyone else's, when he'd been running the other way in a ship they called stolen, with a recorder clipped to his collar.

"Cooper Station," TARS said from the seat behind him. "They would like their Ranger back."

"Tell them it was borrowed."

"I have." A pause, timed to the hundredth of a second. "They would like it noted that it's late."

Cooper almost smiled. Beside him, Brand did smile, and didn't hide it.

Borrowed. He turned the word over. The ship, the gravity, the minutes on his daughter's clock. None of it had been his to keep. He was giving the last of it back now. Late, every time.

Brand was flying the Ranger well. She'd come out of the wormhole and lined up on the station like she'd been doing it for years,

a light steady hand on the stick, her eyes moving over the instruments, never resting long on one thing. He hadn't said anything to her about it. He would. Later. He'd find a way to say it that didn't sound like he was surprised.

The station grew in the window, a great slow cylinder lit along its whole length, windows by the thousand, a whole town turning on its side.

Below the station, in a long parking orbit, hung a line of ships.

They were new. That was the first thing he noticed. Long and clean and lit from end to end, nothing patched on them, nothing scorched, a row of them strung out along the orbit like beads on a wire. Big ships. Built to carry a lot of people a long way.

"Settler convoy," TARS said. "Bound for Edmunds' planet. Departing in a month. They say they got your messages, Doctor Brand. Every one. Nothing they sent back ever reached you. They've been building those ships ever since."

Brand went still at the controls.

She watched the ships go by under them. She watched them the whole way, turning her head to keep them in the window until they slid out past the frame and were gone. Cooper watched her face instead of the ships, and thought of a habitat on a pale plain with its lamps still burning, and a cairn on a rise, and a name cut into stone by a woman alone with a chisel at night.

Her hand had gone into her coat pocket, around a small flat stone she had carried all this way. "Somebody ought to show them where the water is," Brand said, still looking at the place where the ships had been.

"Somebody ought to," Cooper said.

"I'd be good at it."

"I know you would."

She turned her head then and looked at him, and there was the beginning of a smile in it, the one she had almost given him over a coil of data cable a long way from here.

"There's room on those ships, Cooper."

He didn't answer that, not yet. But he didn't say no, either, and she saw that he didn't, and she turned back to the window and flew them in.

His hand found the cracked watch in his pocket and stayed there, the whole way in.

⁂

They had kept her room.

He hadn't expected that. He had expected a ward, or an office, or a polite young person with a tablet and a form. Instead a polite young person with a tablet took him up two levels and around a long curve of corridor, and stopped at a door, and said, "They said you'd want to see it," and left him there.

TARS had come up with him and stayed outside in the corridor, in a corner, folded small.

The room was quiet. It had a window onto the rings. A hospital bed, empty, made up tight with clean white sheets, the pillow squared. A chair beside it, the chair he had sat in, the last time. Photographs on the walls, a lot of them, frames of every kind. People he didn't know. Children he didn't know, growing up across a wall. A wedding. A man with Donald's squint. And, here and there, people he did know. Tom on the porch. A dark-haired girl of ten squinting into the sun, holding up a fish.

He stood looking at that one.

"She said you'd come back."

He turned.

A woman stood in the doorway. Fifty, maybe a little more. Gray coming in at her temples. Tall, the way Murph had been tall. And Murph's eyes. Exactly Murph's eyes, so exactly that for a second his heart did something stupid and he had to put a hand on the back of the chair.

"I'm Ellie," she said. "Her granddaughter. I'm sorry. I should have knocked."

"It's all right."

She came in. She had a small wooden box in her hands, plain, the size of a book, the corners rubbed pale. She didn't give it to him yet. She stood with it and looked at him, the way people must have looked at him all over this station when he first came back: the man from the story, younger than his own daughter, walking around.

"She told us about you," Ellie said. "All my life. My dad used to roll his eyes. Grandma Murph and her father who flew into a black hole." She smiled a little. "Then you turned up. Grandma was ninety-eight. She'd been in that bed eleven weeks and she sat up and said 'Told you.'"

Cooper laughed. It hurt.

"What was she like?" he said. "After. All of it. I only saw—I missed all of it."

Ellie thought about that. She took her time. She had Murph's way of taking her time, too.

"Stubborn," she said. "Funny, when she wanted to be, which wasn't often in front of people. She ran half of NASA for thirty years and never once used the title. She'd fix anything. Toasters, airlocks, my bicycle. She'd take things apart just to see, and put them back, and they'd work better." She looked at the photographs. "She was angry at you for a long time. She said so. She said it was the most useful thing she ever had, being angry at you, it got her up in the morning for years." A pause. "And then she wasn't anymore. I

don't know when. I asked her once. She said something happened on her birthday."

Cooper went very still.

"She never told anybody else," Ellie said. "Only me, and only at the end, and she made me promise not to tell my dad, because he'd think she'd gone soft. She said she was in her office at NASA, the year she turned the age you were when you left, and she'd just recorded a message to you that she was ashamed of. And somebody knocked on the door." Ellie was watching his face now. "She said for sixty years she told herself she dreamed it. And then she just smiled at me, and wouldn't say anything else."

Cooper couldn't answer.

Ellie nodded, as if he had.

She held out the box.

"She said to give you this," she said. "Nobody else was allowed to open it. Not me. Not my dad. Not anybody. She kept it in that drawer by the bed for as long as I can remember."

He took it. It weighed almost nothing.

"I'll be down the hall," Ellie said, and touched his arm once, lightly, and went out. In the corridor he heard her stop.

"She talked about you, you know," Ellie said. "She said you were the smart one."

"She was being kind," TARS said. "I'm the only one."

"She said you'd say that."

Ellie laughed, and the sound went away down the hall.

⁂

Cooper sat down on the edge of the empty bed.

The sheets were cool and very smooth. The window was full of rings. Somewhere below him, on the far side of the station's slow

turn, a line of new ships waited to go to a world his daughter had saved for people she would never meet.

He opened the box.

Inside, on a bed of folded cloth, lay a watch.

The same watch. The twin of the one in his pocket. It was old now, older than he would ever be: the steel worn soft at the edges, the band replaced at least twice, the latest one leather gone dark and supple with handling. The glass was unbroken. The second hand was still.

Beneath the watch there was a folded card. He knew the handwriting before he opened it, even though he had never seen it like this, shaky and slanting, an old woman's hand.

I knew your knock.

He read it again. He read it a third time. Then he set the card down on the blanket beside him very carefully.

There was one more thing in the box, in the corner, half hidden in the fold of the cloth. He almost missed it.

It was a tiny piece of metal. No bigger than a fingernail. A little bent bracket with a single hole through it, the kind of part that holds one small thing to another small thing somewhere deep inside a machine.

He picked it up and held it in his palm.

A kitchen floor. A ring of screws and wires. A seven-year-old with a screwdriver in her fist and her face furious, and him on his knees beside her all night, and in the morning the radio finally crackling back to life on the table, faint and tinny, playing some old song, and this one part left over that neither of them could place. *Where does it go?* she'd said. *I don't know, Murph. It works without it.* And she had put it in a jar on her windowsill, and kept it there, because it bothered her. Because something was left over and she didn't know where it belonged.

She had kept it her whole life.

He closed his hand around it.

Then he lifted her watch out of the box, wound it until the second hand began to move, and laid it on the white blanket. He took his own recorder out of his jacket pocket, the one he had talked to her through on the way out, the one with his voice on it telling her he wasn't going to break another promise. He set it in the box, in the place where her watch had been, and laid the little bracket on top of it.

He took the cracked watch out of his pocket and laid it on the blanket beside hers.

Two watches. Side by side. His with its cracked glass, hers with its worn band.

For a moment their second hands ticked out of step. One. Then the other. One. Then the other. The way they had ticked on either side of a door, his against her wall clock, the gap opening between them.

Then, without anything he could see happening, they found each other.

Ticking together.

Cooper watched them. He watched them, the two thin hands sweeping round in step, the same second, the same second, the same second, as if they had never once been apart.

He was smiling. He was crying. He didn't try to stop either one.

Outside the window the rings turned, and Saturn turned, and somewhere out past all of it, beyond the wormhole and a closed seam in the stars, five thousand lives were going somewhere he would never see. Somewhere they were meant to go. In the corridor, TARS was waiting, and down the hall a woman with Murph's eyes, and somewhere on this station Brand was standing at a window, watching a line of ships.

He sat with the watches a while longer.

Then he picked his up, and hers, and held them both, one in each hand, ticking.

⁂

The End

Back Matter

Cast of Characters

On Lazarus

Joseph Cooper. Former NASA test pilot and farmer. He piloted the Endurance through the wormhole and survived a journey into Gargantua. Returned to Cooper Station decades after leaving Earth, he has one promise left to keep.

Dr. Amelia Brand. Biologist and member of the Endurance crew. She reached Edmunds' world carrying Plan B's frozen embryos, tasked with establishing humanity's future on a distant planet.

TARS. Former Marine Corps robot and Cooper's companion aboard the Endurance. Four rectangular sections, adjustable humor and honesty settings, and a talent for saying exactly what Cooper doesn't want to hear.

CASE. TARS's fellow robot from the Endurance mission. He accompanied Brand to Edmunds' world, where the two worked to establish a viable human settlement.

Dr. Kane. Gravitational physicist and the last surviving crew member of the research vessel Lazarus. He developed its experimental gravitational-gradient array and has spent decades studying phenomena he cannot fully explain.

The crew of Lazarus

Reyes. Commander. "Reyes had rules."

Okafor. Engineer. Sang while he worked, badly.

Lindqvist. Grew tomatoes on the habitation wheel under lamps, in a crate of smuggled dirt.

Melanson. Drank tea strong enough to strip paint, and thought she could cook. The faded mug was hers.

Dunn. Told the worst jokes on the ship and laughed hardest at them.

On Earth and at Cooper Station

Murphy "Murph" Cooper. Cooper's daughter, whose discovery made humanity's escape from Earth possible. Her relationship with her father transcended time and distance.

Tom Cooper. Cooper's son, who remained on the family farm as Earth's conditions deteriorated.

Donald. Cooper's father-in-law, who helped raise Murph and Tom.

Ellie. Murph's granddaughter.

Remembered from the Endurance mission

Professor John Brand. Amelia's father and the scientist responsible for developing Plan A and Plan B.

Wolf Edmunds. Lazarus-mission astronaut who explored the world that Brand eventually reached.

Romilly. Endurance physicist who experienced twenty-three years while Cooper and Brand spent only hours on Miller's planet.

Dr. Mann. Lazarus-mission astronaut whose falsified planetary data endangered the Endurance mission.

Glossary

Aft / forward. Toward the back / front of the ship. On Lazarus's bridge, aft is the rear bulkhead where the Nest is mounted; forward is the windows.

Array (gravitational field array). Kane's invention. Coils along Lazarus's spine and spokes that make gravity stronger on one side of a space than the other. Woken and steered by a hand on its palm plate. Normally capped well below anything that could hurt a person.

Bus. A branch of the ship's electrical system. When one fails, everything on it goes dark.

Channel, the. The path through space that the array holds Lazarus in, along CASE's route.

Cooper Station. Humanity's home in orbit near Saturn: a great rotating cylinder with towns, fields and a ballpark on its inner surface.

Counter-rotor. A heavy emergency flywheel in Lazarus's spine, idle until needed, built so the habitation wheel's spin can be dumped into it in a hurry.

Cryocooler. The powered cooling loop that keeps the Nest at storage temperature. Without power, the Nest holds its cold for hours, not weeks.

Edmunds' world. The cold, thin-aired planet chosen for Plan B, orbiting a small, distant sun.

Endurance. The ring-shaped ship that carried Cooper, Brand, Romilly, Doyle, TARS and CASE through the wormhole.

Gargantua. The supermassive black hole on the far side of the wormhole.

Gradient. Gravity that changes across a distance, pulling one side of an object harder than the other. It's what stretches Kane's drop of water.

Habitation wheel. The part of Lazarus that spins to give weight. Its bearing seized in the emergency at Saturn, and it never turned again.

Heavy field. A small region where the array has been turned past its limit, crushing anything inside under many times normal weight.

Humor setting. One of TARS's adjustable personality settings, from zero to one hundred.

Knock, the. Two knocks close together, a pause, then a third. A hand's rhythm, not a machine's.

Lazarus. Kane's research ship: a long weightless spine, a habitation wheel on spokes, and five long petals.

Lazarus missions. The twelve astronauts who first went through the wormhole, each to a different world. Miller, Mann and Edmunds were among them.

Manifold. The trunk of pipe carrying coolant to Lazarus's reactor. Its patched seam is in the manifold bay, at the end of the service corridor.

Miller's planet. The ocean world near Gargantua where one hour cost seven years outside.

Moment (room). Inside the opening, a single moment of time, seen from outside as a lit room. It can be watched and touched with a knock. Nothing in it can be changed.

Nest (NEST). The Nitrogen Embryo Storage Tank, holding Plan B's five thousand frozen human embryos. A green status ring around its display shows its condition and its countdown.

Opening, the. A region where space and time come apart, forming around whatever it is for.

Palm plate. The panel at the center of the array console. The array answers only a hand that can feel the gradient.

Petals. Five long booms around Lazarus's core, carrying solar cells, battery racks and structure.

Plan A / Plan B. Plan A: lift humanity off a dying Earth by solving gravity. Plan B: start over on a new world with frozen embryos.

Port / starboard. The left / right side of the ship, facing forward. (A "port" can also mean an opening, as in the docking port.)

Pressure cabin. A small, separately aired room off the service corridor, with thick walls and a manual wheel door.

Pulse. A sudden flare of the Nest's green light, followed by its status ring counting down.

Ranger. A small, fast spacecraft for short hops between ship, station and orbit.

Rear equipment hatch. The motorized hatch in the back wall of Lazarus's bridge, opening straight to space.

Root airlock. The small airlock on the spine near the base of the petals.

Seam. A dark line across the stars, edged with gold light, where the opening begins.

Shear. A narrow, slow fold of tidal force. It looks like a gravitational wave but isn't one: it goes from one place to another, slowly enough to be seen coming, and would tear a ship in half.

Spine. The long central core of Lazarus. Always weightless.

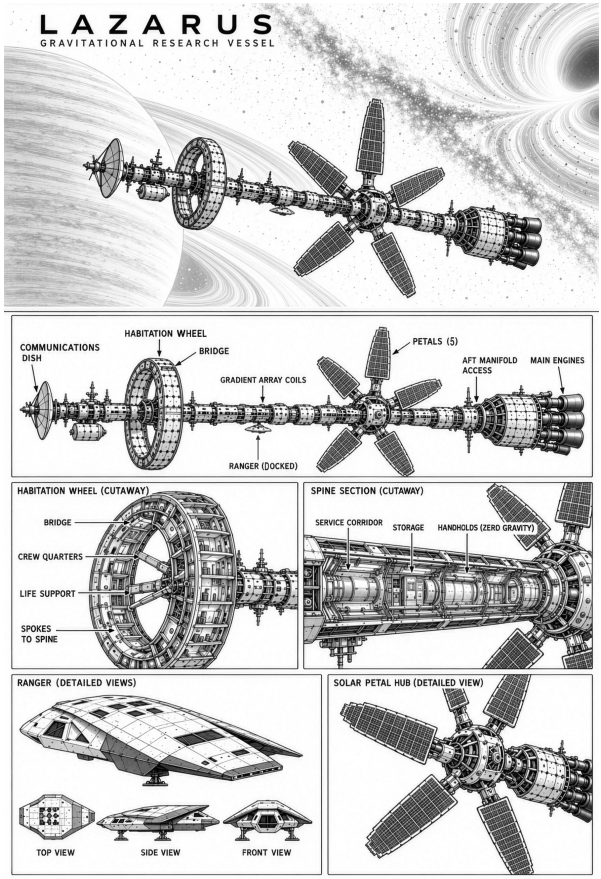
Status ring. The ring of green light around the Nest's display. When the Nest pulses, the lit part shrinks clockwise, segment by segment, like a clock running down.

Tesseract. The room made out of time, built inside Gargantua by future beings, through which Cooper reached Murph across the years.

Time running ahead. Near the Nest, in brief bursts at each pulse, time runs fast instead of slow. Watches gain and wounds heal early.

Wormhole. The passage near Saturn, placed there by future beings, leading to Gargantua's galaxy.

Lazarus


LAZARUS
GRAVITATIONAL RESEARCH VESSEL
COMMUNICATIONS DISH
HABITATION WHEEL
BRIDGE
GRADIENT ARRAY COILS
RANGER (DOCKED)
PETALS (5)
AFT MANIFOLD ACCESS
MAIN ENGINES
HABITATION WHEEL (CUTAWAY)
BRIDGE
CREW QUARTERS
LIFE SUPPORT
SPOKES TO SPINE
SPINE SECTION (CUTAWAY)
SERVICE CORRIDOR
STORAGE
HANDHOLDS (ZERO GRAVITY)
RANGER (DETAILED VIEWS)
TOP VIEW
SIDE VIEW
FRONT VIEW
SOLAR PETAL HUB (DETAILED VIEW)

The Science Behind Borrowed Gravity

Interstellar asked its audience to take real physics seriously—and to accept a few extraordinary possibilities beyond what science can currently explain. *Borrowed Gravity* attempts to do the same. Some of its science rests on established principles. Some extends ideas introduced in the film. And some is invented entirely for this story.

What's real.

Space is unforgiving, but not always in the ways movies suggest. Without air resistance or another force, objects continue moving, and spinning objects continue rotating. A spacecraft cannot simply stop its own rotation without transferring angular momentum somewhere else.

A rotating habitat can create artificial weight through centrifugal effects. The farther you are from the axis of rotation, the stronger that apparent weight becomes. That's why the habitation wheel of Lazarus gives weight while it turns, while its central spine is always weightless.

Exposure to vacuum doesn't cause a person to explode or freeze instantly. Without pressure and oxygen, useful consciousness may last only ten to fifteen seconds. Survival depends on how quickly pressure is restored and how long the exposure continues.

Saturn's rings lie thousands of kilometers above its visible clouds. Lazarus follows a fictional research orbit that carries it

between the ring region and the upper atmosphere, where even a small navigational failure can eventually become dangerous.

Human embryos can be preserved for years at cryogenic temperatures, commonly near −196°C using liquid nitrogen. Properly insulated storage vessels can remain cold without continuous electrical power. The Nest aboard Lazarus is a fictional, lightweight system using active cryogenic cooling, with limited thermal reserves and considerable dependence on the ship's damaged electrical systems. The weeks-long incubation Brand performs on Edmunds' world is also fictional: today embryos are cultured for only five to seven days, and growing them further outside a womb would take technology well beyond current medicine.

What comes from the film.

The wormhole near Saturn. Gargantua, the enormous black hole. Miller's planet, where one hour on the surface corresponds to seven years far away. Even that required a black hole spinning at nearly the fastest rate nature allows. The extraordinary effects of gravity on the passage of time. In the model built for the film, the wormhole's own gravity is gentle—about as strong as Earth's—so passing through it is safe; it is the journey around it that is dangerous.

The tesseract, where Cooper encounters moments from Murph's childhood and communicates through gravity. The suggestion that beings from humanity's distant future learned to perceive and manipulate dimensions beyond our familiar three.

And Plan B: thousands of frozen human embryos, carried across the universe in the hope that humanity might begin again.

These ideas form the scientific and philosophical foundation of *Borrowed Gravity*.

Gravity's grip on time also explains why Cooper and Brand meet again at nearly the same age. The slingshot around Gargantua cost fifty-one years of outside time. Cooper then fell into

the black hole, where only hours passed for him while decades passed for everyone else. Brand reached Edmunds' world about thirteen years, by Earth's calendar, before Cooper reached her. She lived eighteen months of them awake and slept through the rest in cryosleep, where the body barely ages. So when Cooper reaches her door, the calendar says thirteen years have gone by, but her body has lived only a year and a half of them, and his only a few weeks. Everyone else they knew has grown old.

What this book invents.

Lazarus carries a gravitational-gradient array, an experimental system capable of producing controlled differences in gravitational force. It can shift ballast, influence nearby objects, and, when pushed beyond its safety limits, become extraordinarily dangerous. Nothing resembling this technology exists today.

The gravitational shears are also fictional. They are not gravitational waves, which propagate at the speed of light. Instead, they are localized disturbances in spacetime, moving along the mysterious gradient and creating dangerous tidal forces. Their limited width and speed allow the crew to detect and sometimes evade them.

Near the Nest, time behaves in ways conventional relativity does not predict. Rather than steadily slowing near a massive object, local time appears to advance in brief, uneven bursts. The characters can measure some of the consequences, but they do not fully understand the mechanism.

And finally, there is the opening: a place where ordinary distance and the familiar sequence of past, present, and future no longer behave as expected. Its rooms allow Cooper to witness and interact with moments in time, though what those interactions can accomplish remains constrained by a history that has already occurred.

Where the science ends.

Some of these ideas can be described using real physics. Others cannot. The gravitational array, the shears, the embryos' mysterious response, and the opening are speculative devices created for this story.

Their purpose is not to suggest that humanity already understands such things, but to explore what might happen if our understanding of gravity, time, and higher dimensions were still incomplete.

Some questions remain unanswered deliberately. Not because the answers don't matter, but because the people searching for them may be standing at the edge of something larger than they can comprehend.

That was part of the wonder of *Interstellar*.

It is part of the wonder I hope remains in *Borrowed Gravity*.