CHAPTER 1

The Assignment

At eleven minutes past midnight, a satellite crossed the Leo Triplet and ruined Katherine Mercer’s forty-first frame.

She knew before the image finished downloading. The camera had been cooling itself to minus twenty for an hour, the guiding graph on her laptop had been flat as a sleeping heart, and then one thin bright line cut straight across the galaxies, like a hair on a lens. She watched the preview load and said a word her mother would not have approved of. The word hung in front of her mouth as a small cloud, then drifted off toward the mountains.

It was the third week of March, minus twenty-one on the thermometer she kept clipped to the tripod, and she was standing in a gravel pullout above Pyramid Lake in Jasper National Park with her fingers wrapped around a chemical hand warmer that had stopped warming around ten o’clock. The mountains made a black cutout against a sky so full of stars that the faint ones looked like salt spilled across a dark counter. Eleven thousand square kilometres of protected night, the park brochures said. Katherine had driven three and a half hours from Edmonton to stand in it and lose a frame to a piece of orbiting hardware.

She deleted the frame. Forty more remained, and the mount was still tracking, and the galaxies did not care about her feelings. That was one of the things she loved about them.

She had learned that from her father. Walter Mercer had spent forty years as a land surveyor in central Alberta, and when she was nine he had taken her out to a barley stubble field near Red Deer on a

November night, set a borrowed telescope on its legs, and told her that every point on earth could be described by two numbers if you were patient enough. She had asked him what the numbers were for the sky. He had laughed, a short puff of white in the dark, and said that the sky was the one place where nobody had ever agreed to stop measuring.

She had been measuring ever since. Her apartment in Edmonton had a second bedroom that held no bed. It held three monitors, a rack of hard drives, and a wall of prints she had made herself: the Horsehead in ruddy gold, Andromeda in a soft blue, a fierce little cluster of stars that she had once spent eleven nights capturing and eleven more fixing. Magazines had started to call her. A gallery in Calgary had hung six of her frames. None of it had been quick. All of it had been the kind of progress that looks like luck to everyone except the person who drove to Jasper in March with dead hand warmers.

At twelve forty she packed up, because the guiding had started to wander and the cold had gotten into the focuser. She rolled the mount case to the car one stiff step at a time and sat behind the wheel with the heater roaring until her fingers started to hurt in the good way. Then she drove the forty minutes back to the motel in Jasper townsite where she had a room paid through Sunday, and she checked her email.

It was the third message down that made her sit up on the bed with her coat still on.

From: Dr. Eleanor Voss, Meridian Sky Archive
Subject: Paired Skies, your match

Katherine read the subject line twice. She had applied to Paired Skies in November, mostly because Eleanor Voss had asked her to, and because a woman who runs the largest night-sky photo archive in the country is not someone you refuse. The project sounded al-

most sentimental on paper. The Archive wanted to match photographers in the northern hemisphere with photographers in the southern hemisphere and have each pair shoot the same targets during the same week. Two skies, side by side, one frame beside another. They would call it the most honest portrait of the heavens ever assembled, which was the kind of sentence Katherine usually let slide off her like rain.

She opened the message.

> Katherine,
>
> Good news and a small complication. Your match is confirmed. Your partner is Daniel Soto, who teaches in a one-room school in a village called Los Callejones, in the Elqui Valley of northern Chile. He is not a professional. He is, however, one of the best-recommended volunteers we have, and his local sky is exceptional. He has been shooting for six years, mostly with equipment I would charitably describe as devoted.
>
> The complication is that the volunteers in the south do not have your resources, and their internet is unreliable. Daniel's school has a satellite link that works most evenings, but video is a struggle. The protocol is voice messages for field notes, images by upload, and patience. I trust you can manage patience. I have seen your guiding logs.
>
> First shared target: M42, the Orion Nebula. The window is short for you, as Orion is leaving your sky. Please begin within the week.
>
> One more thing, and I say it as a friend. The Long Night Commission opens applications in June. The selection panel pays attention to who can work with others under hard conditions. This project is a good place to be seen doing that.

E.V.

Katherine put the phone down on the bedspread and looked at it.

The Long Night Commission. She had not told Eleanor she was thinking of applying. She had not told anyone. It was the sort of thing she had carried for three years in a back pocket of her mind, folded small, taken out only when she was alone: a funded stretch of months at a polar research station, two poles, two winters, the darkest and clearest skies on the planet and nobody else's schedule to answer to. The photographers who came back from that kind of work did not get called talented. They got called important. She wanted it so badly that she sometimes felt embarrassed for the wanting.

So Eleanor knew. Of course she knew. Eleanor Voss had been running the Archive since before Katherine could hold a camera, and she noticed things the way weather noticed mountains.

Katherine took off her coat at last and hung it on the chair. Then she pulled the laptop onto her knees and typed Los Callejones into the map.

There was almost nothing there. A grey thread of road climbing a side valley. A scatter of tiny roofs. A dry riverbed. The satellite view showed hills the colour of toast and, here and there, a green smudge where somebody had coaxed water onto a patch of ground. Beyond the village the valley folded upward into ridges that kept going. Daniel Soto lived at the end of a road that looked as though it had given up halfway and then changed its mind.

She felt a flicker of doubt, small and unflattering. A volunteer. A schoolteacher with devoted equipment. She had met enthusiasts before, kind people who sent her blurry photos of the Moon with exclamation marks. She did not have time to be anyone's mentor. She had a June deadline, a stack of unprocessed data from February, and a wrist that ached when the temperature dropped.

But the Commission panel paid attention. Eleanor had said so, and Eleanor did not waste sentences.

She closed the map and wrote back, short and professional: *Understood. I will begin this week. Thank you for the match.* She pressed send, then looked at the ceiling for a while, listening to the ice machine groan in the hallway.

She did not sleep well. Around four she gave up, put her coat on again, and went out to the motel parking lot to look at the sky.

Jasper's streetlights had been shielded for years; the town had made a point of it, and tourists came in October for the festival and left talking about the stars. Katherine stood beside her car with her breath going up in slow columns and found Orion. He was sinking into the west, bright belt tilted, his sword hanging below it with the faint pink smear she knew like a face in a crowd. M42. Twenty-four hundred light years away, a nursery of new stars, and she could cover it with her thumb.

In ten days, Eleanor had said, he would be too low to shoot. By the middle of April he would be gone until autumn.

Somewhere on the other side of the equator, a man she had never met was looking at the same constellation, and for him it was the middle of the evening, not the end of a long night, and the hunter was high overhead. She tried to picture the view. She could not do it. She had looked at the southern sky in photographs, but the idea of standing underneath it and finding everything turned around felt oddly personal, as if someone else had been living in her house with the furniture rearranged.