

Time was running out on her dream, and this was her last chance to find something in the Catalog.

The Catalog

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THE DWARF RED STAR set over the ice dunes in the distance as Astrid Bell dipped her toes in the liquid ethane lake. A thick, orange-ish fog hugged the black, oily surface. NG-4587-b was spectacular in an eerie sort of way. She knew, however, if she were really there, her toes would've snapped off in the minus 180-degree Celsius liquid, if she'd even made it that far. The ice planet's atmosphere was predominately nitrogen, with a smidgen of methane, and that smog, her heads-up display told her, had some sort of organic matter in it. Still, she longed to walk on new worlds.

Maybe the next planet would be a terrestrial one, she told herself. She'd been through so many gas giants and ice planets in this little project of

hers that she was beginning to see why the scientists, on Earth and Mars, had given up on the Catalog. Sifting through all that data was like looking for a particular speck of dust in the vast, dusty Hellas Basin.

The bells chimed for class. NG-4587-b evaporated around her to be replaced with an old Earth-style classroom, complete with uncomfortable desks and a blackboard. Her

classmates from all over Mars settled into their seats. The Tharsis City kids were physically in the same facility, but most students were like Astrid, at some isolated research or terraforming station their parents were assigned to. The Minister of Education insisted on these old-school teacher-led classes.

“It gives those remote students a chance to learn the social graces before they enter the workforce,” she’d once told the Tharsis Action News.

“Astrid Bell!” called Mrs. Kobayashi, the Year 10 teacher. “You still owe me a paper on the weather patterns of the Elysium plains.”

The student in front of her, Sulla, a thick-headed boy from Lowell Crater, snickered. The amusement slid off his face, though, under the teacher’s icy glare.

“Your independent study project, Astrid, is. . .” Mrs. Kobayashi paused to search for the word. “Commendable. However, you should be quite pleased with your job assignment. Solar power technician is a very good career.”

Sulla leaned back and whispered to Astrid. “Want to trade? I’m down for hydroponics.”

Astrid shook her head. She had other plans. She hoped if she found something in the Catalog, she could convince the Education Ministry that she belonged at the big observatory on Olympus Mons.

“Class, as you know, apprenticeships start in three weeks,” Mrs. K began. “You all should be taking your MCE’s more seriously,” she said looking at Astrid. All 15-year-olds had to pass the Mars Competency Exams before going to work. “Any questions before we continue with our review?”

Astrid was tempted to ask the question that always burned in the back of her mind: “What if someone’s out there?” She’d actually asked it a few times, of the teachers, her parents, her classmates. The answer was always the same. There’s no one out there, at least that we can reach in our lifetimes — or our great-great grandchildren’s. The Extrasolar Planetary Catalog — a.k.a. the ExoCat — proved it.

Centuries ago Earth sent out probes to all of the star systems within a dozen or so parsecs of Earth. Each probe deployed satellites and rovers to explore, map, and sample each planet in the system. Astrid had once seen models of the rovers — knobby-tired little dune buggies the size of toy cars — in an ExoCat documentary on MBC One. The rovers and satellites transmitted the data home, where it was catalogued and assembled into simulations. When the scientists sifted through the data, projecting it and walking through it much like Astrid was doing, they concluded none of the planets were habitable, let alone inhabited. The ExoCat designers eventually sold the data for entertainment purposes. Astrid had seen part of the ice world used in *Ice Queen of Eridani*. Her father enjoyed playing it after a hard day cleaning the arrays.

After her last class, Astrid dialed up the next world in the Catalog. GJ-436-b was a rare Hot Neptune, a planet the mass of Neptune that orbited its star so closely they almost looked like they were kissing. And yet GJ-436-b was an ice planet, which meant it had started its life far away from its sun. Astrid stooped to touch the frozen surface of the planet.

“Your teacher called,” a voice said behind her. It was her father. A smile twitched across his lips as he surveyed the purplish landscape enveloping him. Then he shook himself. “You’re spending too much time on this.”

He warned her that she needed to pass her exams or she'd be cleaning floors for the rest of her life. Then he kicked her out of the media room so he could play Ice Queen.

Astrid persisted, though, over the last weeks of school. She walked on dry worlds, floated through gas giants, and even stepped on a promising wet world. Still she found nothing. No life. No long-dead civilization. Not even a microbe.

She did, however, manage to pass her exams, barely. And tomorrow morning, she was leaving to start her apprenticeship at Solis Planum.

She couldn't resist one last trip off-world.

Astrid crunched slowly through a rusty plain of a terrestrial planet much like her own. She walked for hours. Nothing. She thought about switching to a more spectacular planet in the Catalog, maybe a Hot Jupiter, but a gas giant hugging its sun was the least likely place to find life, at least as we know it. This world was like Mars, dusty, which is why the solar arrays always needed maintenance. And why Mars always needed solar technicians. She groaned. The thought of cleaning arrays for the rest of her life, only seeing new worlds in games to be played after work, stopped Astrid in her tracks. That wasn't the life she dreamed of; that was her father's life.

Astrid sank to the ground in a small poof of red dust. She felt like crying as she watched the planet's sun dipping toward the horizon. She'd design a new type of array that didn't need cleaning, she told herself. She'd become so famous that she could travel across Mars and maybe even to Earth. She didn't believe it, though. Her father had never even been to Tharsis City.

The real-time clock on her heads-up display chimed to remind her that the transport south to Solis Planum left in three hours. Time was running out on her dream, and this was her last chance to find something in the Catalog.

She pulled herself to her feet, determined to walk this world until the last possible minute. As she dusted herself off, though, something skittered across the ground a few meters ahead of her. It looked like one of those crustaceans she'd seen on an Earth nature show. The crab-like creature extended its antennae and turned toward Astrid. As it moved toward her cautiously, almost clumsily, she could see it was made out of a riveted silvery metal.

"It's a robot," she gasped.

Astrid walked up to the elegant little explorer. She longed to touch it, to talk to it, but neither of them was really there. Then she realized for her to see this crab-bot in the Catalog, the Earth explorer and this alien one must have actually seen each other, must have made first contact. Astrid's heart raced. Yet this happened centuries ago. And nobody noticed — at least here. The parent world of that crab-bot might have noticed, she thought, but it would take centuries for them to find us. Or maybe they wrote off their own version of the Catalog, too.

Astrid imagined another kid, tens of parsecs on the other side of this dry world, staring at the image of a small, knobby-tired Earth rover and thinking the same thoughts as her.

We are not alone in the universe, she told herself. And I've found the speck of life to prove it.