

Essential Systems

By Tito J Davis

Heaters blazed on the street under the glass dome enclosing Eben town. Black crystalline towers rose off the asteroid reaching for the unseen stars beyond.

An elevator chimed on the roof of a tower and Kal Resnik stepped out, a folder tucked under one arm.

"Table for two, under Collins."

The host directed him to a table by the edge of the roof.

The Lantern was the only sit-down restaurant on Eben Town asteroid mining base, and tried its best to wear that title well. Anyone stationed there with something to celebrate, however rare that may be two hundred million kilometers from Earth, ate there.

Strings of fairy lights wound all around the rooftop and made one feel as though they dined among the stars, despite the stars being invisible from under the dome.

"How would you choose to spend the best day of the worst year of your life?" Kal asked Collins with a grin.

Collins was already seated at their table. "It'll be longer than a year by the time we're home," he tried to scowl and shake his head, but a grin to match Kal's broke through. His eyes shone as Kal took the seat across from him. "Not like this," he

continued, "but I'll take what I can get, this one last time."

"This one last time, and the whole flight home." Both grins faltered, then settled into simple smiles of satisfaction. Even a four-month flight wasn't too daunting, Kal thought, with a friend on the shuttle alongside him.

Kal set his folder on the table and slid it across to Collins, who opened it and read.

Collins read in silence for a while, during which a bottle of wine was ordered and opened, a '61 vintage. They ordered food too; not the most exciting endeavor on an asteroid that could only serve things grown in limited-space hydroponics labs. And no meat. No animals but humans lived out here.

"A lone arrival," Collins finally said, and sipped his wine, "Jacob Bidud, and they're sending an unmanned probe to stop it before it floats too far off course."

Kal nodded and sipped his wine as well. He frowned at the oily feel of it, though perhaps the glass was to blame.

The probe would keep Bidud's ship from going too far off course between Earth and the asteroid, it likely wouldn't add much time to make a stop there on the way home; a quick pit stop, dock and do the assessment, then back on their way, no problem.

"I don't fancy doing an accident assessment during a spacewalk," Kal said, "but it gets us on a ship home."

"I'll take that as you volunteering for the spacewalk. I'll be the voice on the ship." Collins finished his glass and refilled.

Kal threw back the last of his wine to match and refilled as

well. He and Collins had been doing accident assessments together for the miners since they'd arrived, and it always played out this way; Kal with the dangerous jobs while Collins aided him through an earpiece. Kal wouldn't have it any other way. Who could pass up a spacewalk?

"No confirmation of... well anything besides comms systems down and propulsion shutoff."

Kal nodded. Herein lied the discomfort. A spacewalk he could handle, he was excited for it even; but getting on a ship untethered, in a spacesuit where he'd have no real maneuverability if something went wrong, all without knowing what he would find...

On the asteroid, Kal usually would crawl into crevasses in mining tunnels, drag out any failed equipment that may have contributed to whatever accident he was investigating, and inspect it and the rocks around to determine the cause of the incident.

He'd only had to recover one body during his time on the asteroid and had been hoping it would be the only. He'd had to drag it out from rubble and then sift through the rocks that had killed the miner for a broken beam. He didn't know much about metalworking, but he'd told Collins to report that the assembly method of the scaffolding was the cause of the collapse. Assembly method was determined by company policy, and so the mining company would be paying the exorbitant life insurance policy out to the miner's family. It was also just an obscure enough policy that no single person could be blamed.

Kal reminded himself Jacob Bidud might not be dead. With any luck only the comms system had gone out, and whatever had done it had turned off the engines and nothing else. There was enough separation of systems that all essential systems like air filtration and temperature control could be working fine, and they would find Bidud waiting for them when they docked. Unfortunately, comms being down meant no system diagnoses could be requested, and Kal would have to manually check each system and report their status to Collins with no idea if the atmosphere in the ship were livable or not until after his checks.

"Alright, enough work talk," Collins had false disgust in his voice, "Four months until I see my wife; feels good to put a number on it. A fixed number. We've been here five months and I almost never hear you talk about people at home. Who do you miss the most?"

Kal paused to sip his wine. He felt he didn't have much to tell about home. Sure, he'd mentioned how he grew up to Collins, but nothing more recent. "Well, it'll be nice to see my cousins after so long away, but I was living pretty much on my own before I headed up here. Hell, it's why I didn't mind leaving."

Collins raised an eyebrow, "You, on your own? I find that hard to believe. Whose ear would you talk off without a mic beaming your voice right to me?"

"I'll tell ya, what I'm really looking forward to is sleeping in my own bed." Whose ear indeed? Kal smiled sadly, "My real own bed, not these storage pallets they have us on here."

"My own bed," Kal continued more to himself in a

performative wistfulness, "my own home..." He raised his attention back to his friend, "You know, they really know how to incentivize a horrible trip like this. You won't see trees for a year and a half, but you'll have a home and land when you get back!" Kal's voice was laden with mock enthusiasm, "Paying off my whole mortgage just for what only ended up being thirteen months, only five on asteroid. Not too bad."

"I don't know," Collins swirled his wine in the glass, "now that you mention trees... Maybe we are just monkeys in the end, I miss green so much I feel dizzy sometimes."

Kal thought of the woods at his house back on Earth, "We can fly millions of kilometers away to mine rocks in space, build a city of glass and hold ourselves on with artificial gravity, but all we've learned is that we really never should have left the treetops to begin with."

Even under the climate-controlled dome, Kal could feel the cold of space. He hugged his arms to his chest and glanced up at the glass above. The black of space was draped overhead like a frozen blanket, the chill crept in even the deepest of mine shafts.

"I think you've convinced me," Collins said after a moment's silence, "I was going to spend a year or so abroad with the wife and eat through most of the cash. Now I think it'll be a month at most, and only after a long stay at home."

"Thought you didn't care for staying in."

"Here there really is no in."

"And that's why we were always 'out'?" Kal finished his wine

and wondered where the waiter had gotten to.

"If you think I'm going back to live in the city... no, I think I may follow in your footsteps. I'll stay near my family, but it's to the country for me as well. Somewhere I can feel grass under my toes. Maybe near a lake where the tap water will taste nice and fresh even when unfiltered."

Collins also finished his wine and set the glass next to his untouched water glass. "How come you moved out of your city anyway? You've mentioned friends there."

"They were there for a bit," Kal said, "But the further we got from college the more left. Once it was just me," he shrugged. "Will your wife mind moving out of the city? You'll come home a new man."

Collins hadn't often talked about his wife during their time on the rock. Kal had gleaned she was like her husband, more comfortable at bars than in their own living room. There was a part of Kal that was glad he'd left nobody at home, it had clearly been tough on his friend.

"If I say 'let's move somewhere we can have a garden' that may do it," Collins said. He pursed his lips to the corner of his mouth and fidgeted with his empty glass.

Their food arrived, accompanied by another bottle of wine, and Kal felt saved from the dour turn in the conversation.

"Just think," Collins continued, popping a tomato into his mouth and simultaneously pulling Kal back from the conversational lifeboat the food had promised, "a homegrown tomato from my own garden... We could make salsa."

"I love salsa. Real Earth salsa with veggies grown in rich Earth soil... What'll your first meal be when you get back?"

"Hey now," Collins looked up from his food, a smile creeping back onto his face, "that's a dangerous game on the eve of a four-month flight with nothing but astronaut rations."

"Just to practice the topic, I'm sure we'll have a million times, what'll it be?" Kal smiled back encouragingly.

"My wife makes a good brisket in red wine."

Kal let out a low whistle, "I'd kill for some brisket."

"I'll send you the recipe when we get home."

"I misspoke: I'd kill for some brisket cooked for me by someone else. Nothing like a meal cooked for you by a woman."

Collins laughed, "Okay then, what's the best meal a woman's ever cooked for you?"

Despite the occasion, they were falling right back into the rhythm of conversation that they'd been so used to during investigations and the bar afterward.

A sip of wine allowed Kal a moment to think. He knew who'd done the cooking, though he'd never mentioned her. What had she made again? He paused, then another sip of wine was encouraging enough.

"There was this girl. Met at a work thing where they got all the work-from-home's together. After a few months of sending letters back and forth--"

"--Letters like on paper?" Collins cut in, "you can't just say you guys sent letters back and forth. What, you fall for her four hundred years ago?"

Kal put his hands up in his defense, "I like the longform of letters, okay? No awkward nothing-exchanges like in text. Anyway," he felt the flow of a good story building and plunged on, "after a few months she gets a transfer to my city."

"Oookay," Collins nodded approvingly.

Kal held up a finger, "Well, one problem, she'd started dating someone. Because I hadn't done anything, couldn't have, flying out would have been too much for what it was--"

--I don't know," Collins cut in again, "You were sending letters back and forth."

"Well, *because* I hadn't, she'd found someone." Kal shrugged and took a gulp of wine, "We still hung out quite a bit, boyfriend was a good guy." He nodded slowly while looking at his wineglass still in his hand. His head popped back up after a moment, "Anyway, she made a killer curry chicken on rice."

Collins laughed, "Hang on, is she still with the guy?"

"Nah," Kal laughed too, though only lightly, "Eventually I moved out to the country to a house I couldn't afford. Not long after she moved back home and left the guy in the city. We started the letters back up again, but then I got *this* opportunity," he rose his eyes to the heavens, "had to pay off the house. I mean, what am I supposed to do, I lived in the middle of nowhere. Ask someone I'd never even dated to move in with me all the way out there? Nah, might as well ship off here and pay the house off."

They both finished their wine and stared at the glasses. Collins broke the silence, "You haven't mentioned her before, you

still sending messages back and forth?"

There was another moment of silence while Kal refilled his glass, and as he swirled the wine gazing at it with unfocused eyes, "Past couple years we would get on streaks of sending something every couple weeks or so, then long lulls between those streaks. I sent one when I arrived here. Apart from that... this has been a lull."

Kal looked over the edge of the railing beside him. The flames of the heaters speckled the asteroid's surface on the streets between towers, like a starscape reflected in water.

He looked back across the table toward his friend, "Man, you should move out by me. What's the difference coast to coast, what's one countryside to another?"

"The difference," Collins replied with a mock toast, "is between my wife begrudgingly accompanying me outside our city," Kal toasted and they drank, "and her leaving me."

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The conversation turned to lighter topics. Miners they'd met during their stay, the most and least exciting jobs they'd completed, and all the money they'd managed to pump into miners' pockets in payouts, even if they'd had to stretch the truth on reports to do so.

They finished both bottles of wine, and stumbled home with five hours to spare before they got to experience one of life's unique hells: flight takeoff while hungover.

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Stars below, the depths above,

Lives and worlds away my love.

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Warm trills of cello floated over the blanket thick silence of space in airlock beta. The only sound besides was Kal's own breathing. Last stop before home.

They'd arrived at the Minecart 6c6f spacecraft and were surprised to find it still, by all appearances, in working condition. The only immediately noticeable thing wrong was that the communications signals were down.

Apprehension crept in with the familiar chill of space. The probe had confirmed that the engines had stopped running by finding it exactly on course from where its comms had gone dark, but from the lights on inside detected in visual scans, only the propulsion engines and comms were down. Without comms to give them essential systems data, they had no idea the state they'd find the interior in.

Kal was in a full spacesuit with a propulsion pack on for untethered travel, just in case the air quality was deadly or the artificial gravity wasn't working.

"If you do find Jacob alive," Collins' voice came to Kal through the same earpiece as the music, "the guys have already made room for more than just a body,"

A shiver went through Kal. He'd always felt space's deadly cold was largely psychological.

"And the miners have one message for you," Collins was referring to the dozen men who were taking this trip with them. Like Kal and Collins, they were headed home a couple months

early. Evidently the costs of sending two separate crafts home was more than paying out their contracts with unfinished work and sending them with Kal and Collins.

"Tell them I really don't care," Kal said. They were good enough guys, but they took things a bit too lightly for him to want to hear what they had to say right now.

"Yeah," Collins said knowing how Kal felt, "They said hurry up."

A green light came on inside the airlock and Collins' voice followed it, "Evac in 3, 2, 1. Good luck."

The airlock doors opened into the Minecart and Kal's heartrate spiked for a moment.

Stillness and the sounds of strings. Jacob Bidud was not waiting on the other side of the doors, and Kal's tension was allowed to settle just a little.

"Artificial gravity in working order," was Kal's first report as he stepped aboard the quiet vessel, "You bring up to your wife wanting to move out of the city?" Any conversation would distract his nerves. Of course, he wanted to find Jacob Bidud alive, but he'd wished he knew if he was before arriving, and know where he'd find him.

"You're entering the exercise room," came Collins' reply, "and yes." There was a pause, then, "No essential systems in here. You'll need to check air and water filtration, climate regulation, and food supply."

They hadn't touched on most of the topics of their final dinner on the asteroid since being on the route home. They'd

mostly hung out as a group with the miners, and their one-on-one interactions had a slight strain to them. Their goodbye loomed too near on the horizon.

"Exercise is essential," Kal said examining the equipment. Resistance bands were strewn around the feet of a stationary bike, not put away properly, almost as if in expectation of being picked up again soon, "But all seem to be in working order; not even signs of shutdown." The bike's display showed a workout routine tailored to Mr. Bidud.

"It is," Collins agreed sounding subdued, "And she did say she'd like to move out of the city with me. Well, agreed to."

"That's good news," the resistance weightlifting machine didn't warrant a thorough check, but Kal wanted a moment to take some deep breaths before he moved to the next room.

"Not all the way out to you."

There was a thin silence while Kal pulled on weights and tapped hydraulics, not really seeing what he was doing. A cello quartet rolled slowly off each other in Kal's helmet.

"Resistance weights in working order." He took a breath and looked to the door to the next room.

"I'll visit," Collins assured him, "And you'll have to come out and see my new house once I've bought and moved in."

Kal nodded, knowing Collins couldn't see him, but didn't respond. He braced himself, then pressed the button to open the door. "Electric powered doors still working just fine," he reported.

He entered the kitchen and as with the resistance bands,

there were things in a half state of put-away. A ration pack labeled lunch was sitting out with a fork beside it, a mostly eaten breakfast pack sat beside. Nowhere was a sign of a body, living nor dead.

Kal's eyes flicked toward the door to the only remaining room, the bedroom.

"Check the air and water filtration," Collins said gently. He'd discussed with Kal right before he'd donned his space suit and together they decided that it was wisest to make all of the accident report checks before body recovery, if that was necessary. Neither of them liked the idea of making the checks with a body floating around waiting to be returned.

"Did you ever hear from that girl?" Collins' voice cut through a series of high notes.

Kal tapped the water filtration and found it with days of reserves. "You know, I think I might travel a bit when I get home." The quartet played gently together. "I'll spend a day or two in my own bed, but I'll go see my parents, my cousins, my college friends. One lives out by you; I'll stop out when I get there. Once I've given you a month or two of course."

"You can help me move."

"Of course." It would be a fun trip, even if he only saw everyone for a few days each.

The air filtration showed code 6e, which indicated earth quality breathable air. "Air and water both working." A duet replaced the quartet and they began soloing back and forth.

As Kal checked the food supply his attention was caught by a

series of papers stuck up on cabinets. They were hard to decipher. When he stood back, together they looked like a city from above, or a city plan. From in close, they were strewn with numbers beside the geometric patterns. Math, but Kal couldn't make it out.

He reported it to Collins, who had little to contribute aside from mirroring Kal's bafflement.

Neither he nor Collins wanted to say it aloud, but it seemed the only system left to check was climate control, and that was controlled from the bedroom. He'd see the cause of death on the body before any diagnostic was run.

"And no, I haven't heard from her." Pulse starting to pound, Kal made his way to the door and braced himself. "Well, I sent a message the night before we left, and I got a short response. Then, my reply to that received nothing."

"Ahh," Collins sounded regretful, "You'll be alright. A homeowner, works from home, makes good money, lives out in nature; who could say no to that?"

Kal almost smiled. Who would be around to say anything? He took a deep breath and opened the door. His heart felt like it jumped about a foot vertically. He hadn't considered the possibility that he wouldn't find the body in the bedroom, but like the other rooms, it looked as if someone had only just stepped away.

"Kal, break it to me." Collins' voice was resigned.

"He's not here."

"Not where?"

"In the bedroom."

"You couldn't have missed--"

"No." Kal whipped around half expecting someone to be rushing up on him. Nobody was there. He was standing on the ship alone it seemed.

He stepped on trembling legs into the bedroom. There was a bed, covers askew, hiding nothing. At the foot of the bed was a desk. More white papers, covered in writing, math on some, words on others, sat in stacks on the desk. Above the desk was a large window showing nothing but black.

"So no Jacob?"

"Not here, no." Kal's heart started to slow. He double and triple checked over his shoulder as he approached the notes on the table.

"Take a look at climate control, it's the last thing I have to check off."

Heeding Collins' advice, Kal went to the thermostat, "65 Fahrenheit. Colder than I like it, but I could have done this whole thing in street clothes."

"I'd keep your helmet on," Collins advised him unnecessarily. "So, what, he evac?" he sounded annoyed.

"No idea," The lump in Kal's throat gave a lurch as he turned to the comms system. A foot, just wearing a sock, stuck out from behind a panel on the wall.

"Comms," was all he could manage.

"Comms? I don't have a spot for that."

"He's at comms," Kal said, "caught in the wiring."

Collins let out his breath, cutting through the cello duet.

"I'll..." Kal trailed off. He felt rooted to the spot. He picked up a paper that was covered in writing that had fallen on the ground beside the desk.

Dear A-man,

I got your message about your wedding, that's amazing! I'm sorry I'll miss it, being all the way out here. My communications systems have gone down, so I'll likely send this message when I arrive on asteroid, so I guess I should say: hello from the asteroid belt! The astronaut rations aren't as bad as I thought they'd be, or maybe I'm just getting used to them. But you know how much I can learn to love trash food; remember how I went to town on crappy dining hall food? I miss you man. I know I only met Elise once, but I could tell how happy she made you, so I'm excited for you. I'll see you when I get back.

-Jacob

"His comms system went out," Kal said.

"That..." Collins paused allowing a few moments of velvet cello to bleed through, "We knew that."

Kal shook himself, "Just read a letter he was going to send when he arrived, something to a friend of his."

Collins made a noncommittal sound. Kal knew he was stalling before he had to retrieve the body, but he couldn't make himself move from the desk of notes.

He checked more papers, and anything that wasn't covered in math looked similar to the letter Kal had picked up. Notes to friends and family he'd intended to send, all mentioning the

comms dying.

He skimmed a few of these until he found a p.s. scrawled on the bottom of one saying:

I've decided to try to fix the comms myself. I've written 'I miss you' how many hundreds of times since the comms outage, I'm starting to see the words when I close my eyes.

"He was going to fix the comms system," Kal told Collins.

"He was not certified for petty repair," Collins said implying the case wouldn't pay out to his family if that was the cause of death. "I think we've figured out the city drawings," he continued, "the circuit."

Kal finally felt his feet unstick and made his way to the body behind the comms panel. One of the cello duet dropped out. A soloist, slow and sweet as honey hummed deep chords in the silence.

The body took a hard tug to get free, and when it did, the lights shuddered, and the gravity went off and the doors shut. Kal floated away from the wall still holding Jacob Bidud.

"Gravity off, I'm floating!" Kal yelled into his mic. He felt panic setting in. He wasn't floating fast, but all his weight into an impact would be enough to crack his helmet.

"Propulsion pack," Collins replied calmly.

Hands trembling, Kal engaged the propulsion until he was floating almost still in the middle of the room. He took a deep breath. Having been able to walk through the whole ship, he'd forgotten he'd even brought the pack.

He felt foolish, after all the reports they'd done together,

Kal wasn't one to panic, it's why he always took the dangerous role.

He propelled himself to the door and hit the button.
Nothing.

"I'm locked in." Kal looked around at Jacob Bidud's room. His own living situation since leaving home had always been well populated in one way or another. The ship that brought him in had him sharing a room with a miner, and sharing a bathroom and kitchen with four others. He'd had a studio apartment on asteroid, but spent most of his time on the floor's communal living space, when he wasn't at the bar.

The cello soloist summited his crescendo.

Kal thought of his home back on Earth. He had a lot more space there; the dining room could seat a party. He even had a guest bedroom.

"Kal."

Collins' voice shook him from his rumination.

"I think I'm going to have to bust out of this window and be picked up in a different airlock," he responded, eyes still a bit out of focus.

"Might as well. This piece of junk isn't landing anywhere populated," Collins paused, "Cause of death, essential systems malfunction."

Kal looked around and found a heavy clock beside the bed. He stood on the headboard of the bed and situated himself below the window beside the desk.

"Visit me when we get home, won't you?"

Bending his knees, he launched himself up and threw the clock ahead of him and Jacob, who he still clutched in one arm.

"Of course. When I can."

The snowfall of months of lone musings ascended into the night with him, glowing gold momentarily as they lifted past the lights.

#

Is that streak in the sky you coming home?

I wish as it falls in the night alone.