Auxiliary Mission Parameters By Kyle Powers

Commented [1]: Classification Word count Novel 40,000 words or over Novella 17,500 to 39,999 words

Novelette 7,500 to 39,999 words Novelette 7,500 to 17,499 words Short story under 7,500 words

Chapter 1: Emergency landing.

Liam Et'unt awoke seconds before the alarm went off, silencing it halfway through its first shriek. He sighed as he clambered out of his bunk and floated up to the cockpit to relieve Ueme, who'd been piloting the small asteroid mining rig

"Go get some rest Ueme, your shift's up and I'm eager to fly my ship again."

She jumped, startled at the sudden sound in the otherwise dead silence. "Jeezus Liam, give me a heart attack why don't you? Is it time to change already?"

for the past three days.

"Yah, I think Nals'll be up to relieve Brenan soon so if you wanna stop him in the halls and--"

"Thanks! But I gotta get some rest!" she cut him off. "Heh, well catch some sleep while you can Ueme!"

He watched her jump out of the command chair, and with a quick push, glid effortlessly out of the cramped cockpit and towards the crew quarters. *Hmm, Nals is lucky she took such a liking to him,* he thought as the last bit of her tail disappeared through the hatch. *Time to get to work I guess,* he keyed the mic to see if Brenan was still running the mining laser.

"This is Liam, Nals meltin the rocks now, or is Brenan still up there?"

"I'm still here, XO is probably flirting with Ueme in the hallway if you already kicked her outta the pilot's seat."

"Yah, probably, so how're we doin Bren?"

"We're at 20% coolant capacity, and 50% cargo, so we're gonna probably hav'ta start home without a full hold unless you wanna risk damaging the laser."

"Hmm, well we could just orbit a larger rock and laze it in short bursts so it doesn't overheat. How's the tractor beam holding up?"

"Let me check..."

A few minutes passed before Brenan keyed his mic again.

Commented [2]: 1 AU = 149,598,000 KM

https://in-the-sky.org/solarsystem.php

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?obj=ceres&h=20&m=47&date=2457-08-25

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2333B0-7A48-4A04A3A7280B1DD73343/Rad Effects 101 WebEx.pdf

"Uh, we might have a problem Captain"

"What's goin on, Bren?"

"Some of the dust from that last storm must have cut into the external wiring, I'm only seeing one battery powering the ship!"

"Damn! Shut down the laser and go find Ueme, She's better than you or Nals with the electronics even when she's exhausted."

"Can do Capt'n."

Liam sat there looking over the Tyche's readings trying to figure out how three battery cells could go offline without tripping the sensors.

The Tyche was a Schooner Class Mining Vessel coowned by Liam Et'unt and Isok "Nals" Nalrque. Like many independent mining companies, they worked in two man teams. Liam had hired Ueme Cerik and Brennan Tos so they could stay out in the belt longer.

Ueme was a skilled electrical technician from Lua's Grimaldi Dome who was injured in the Navy and jumped at the chance to go back into space. Brenan had gone to university with Liam, dropped out to work private security for one of the big Corps and had reconnected a few years after Liam graduated. He was a hell of a shot and could keep a level head in the tensest of situations... Liam's reminiscing was cut short as Ueme called over the Comms system.

"Li, this is Ueme, what's the closest bubble word to us right now..."

Looking at the screen he quickly found their position on the starman.

"We're about forty three hours out from the 52 Europa Asteroid Colony at optimal speed. Why, is something wrong?" "We may need to do an emergency stop and get some repairs done."

"What's goin on up there Ueme..."

"It would appear that one of the external access hatches was ripped off and debris got into the system, I can't be sure of the extent of the damage until we're in a dry dock, but it's sufficient enough that it knocked out the hazard alarms."

"Shit, okay, get back in and get Nals down here, I need a navigator."

"Wilco, Ueme out."

Liam started mapping the approach vectors for 52 Europa while everyone got into positions. Nals floated into the cabin and grabbed the comms headset as he sat himself in the copilot's seat.

"Hey Li, how was your sleep?" Liam could see the worry in Nals' eyes, *He never did like being off planet for too long*, he thought.

"I slept alright, ready to help me land this thing?"

"Yeah... Shouldn't Ueme or Bren be helping with this, you know I hate flying..."

"That's why you're navigating, and no they've been up for days, they need to rest."

"Just don't crash us, I want to be safely back on Earth when I die!"

"Well if we're crashing, I'll aim fer a planet then." he said with a smirk. Isok just looked uneasy at the comment. "You know I'm just messing with you Nals..." He gave Liam an uncomfortable smile and refocused on the approach vectors in silence.

They had started out as a two-man team in the beginning. Isok couldn't even stand flying in a taxi planetside let alone in space, but the money was too good to pass up. He would just hide in his cabin during takeoff and landing, but every now and then he'd have to co-pilot with Liam, and he'd sweat bullets every time. Liam aligned the ship with 52 Europa's projected location with a two day travel time, powered up the small onboard mass driver, and began propelling the ship up to speed where the Bussard Ramjet could propel them. It took about two hours to reach speeds where the electrostatic ion scoop could begin powering the ramjet. They would stay at Ramjet speeds for a few hours before shutting down the Ramscoop and letting the drag of the interstellar dust slow them to a good cruising speed. After around forty hours had passed Liam fired the attitude thrusters to invert Tyche and then fired the mass driver to begin slowing them down, occasionally purging small amounts of air from the attitude jets to make slight adjustments so they could hit the docks on 52 Europa Colony dead on.

Liam had told Isok to go to the crew quarters a few hours ago and had called Brenan up to assist with landing and docking. Ueme had joined them in the small cabin so she could get to work on the ship as soon as it reached dry dock. Trying to hit a single point on a 300 Km asteroid was difficult enough without two others taking up the little extra space he had in the cabin, though Liam was happy the others were keeping relatively quiet. The minutes crept by as the facilities came into view and the ship slowly came to a stop in its docking rig. Once they were finally pulled in and attached to the artificial atmos of the customs dome, the crew stepped out of their small ship for the first time in nearly two months. Nals jumped out, thankful to no longer be in free fall, even if 52 Europa only had a little over 1% of earth's gravity, but having just a little bit of G was a welcome change.

Ueme got straight to work on the ship while Liam went to the commerce center to look for the parts Ueme needed, the list she sent him was updating every few minutes as she found something else that needed to be repaired or replaced. Isok had gone off to try and sell what little ore they had managed to extract before the emergency stop. Liam had brought all the parts he could get back to Ueme before he went to one of the pubs for a drink and some food. I can't remember the last time I had real food, he thought as he walked into a shady little hole in the wall called The Limping Spirit. The dingy little restaurant had folks from all walks, everyone needed to eat and it being this close to customs it saw its fair share of Earthers like Liam, Luans, Native Belters, and even the odd Martian. Belt stations like this were a great place to network with other crews and maybe even a Corp employee looking for a contractor.

He walked over to the corner and slumped down into a small booth. After a few minutes of looking through the menu a cute waitress walked over to take his order. She was a short girl with mouse-like features with a radiant purple mohawk, like many others who couldn't afford the expensive Biomods she had undergone gene splicing to attain animal features, most folks just took on heightened senses and specific traits, but others like this girl and Liam himself had modified their bodies as well. Liam had gone with the full Rachke Anima Spacer package and taken on the physical appearance of a Slovak Cuvac after college, figuring the thick fur and keener senses would be useful for an aspiring Belter. Earthers tended to look down on people who got full Anima Mods, generally preferring cybernetics, or the far more expensive Biomods and only a handful of doctors would perform the modifications at all outside of the belt.

Liam ordered a pint of their house beer and a chop steak, wanting to keep his bill low. It wasn't the best steak he'd eaten,

but it was quite good for a pub steak, after he finished he left his payment on the table and tipped the mouse girl before heading out to walk around the station and see the sights. Before he could get too far Ueme called him on his comm to get a status update.

"Hey Li, were you able to find any of the other parts I needed for the ship?"

"I told you when I dropped off earlier that that was all there was."

"Well that could be a problem. Unless we can get a new coil, the EM shield won't operate at full capacity and the second we get to ram speeds the dust could tear a hole in the hull. *And* we burnt out the battery that *was* still working during our entry. I'm working on rewiring the other three, but as of now, we only have solar and life support backup power."

Liam's heart sank as he looked at the image of the shikoku inu girl on the comm screen.

"How long would repairs take if we can't get new parts?"

"It would cost more to fix these old parts than to buy newer models, but I could probably get her in shape to fly to another commerce hub in two weeks or so."

"Can you send Nals or Bren to see if you we can order the parts and get them here faster than that?"

"I suppose so, but we're still stuck here for a bit either way."

"Damn, well I'll let you break it to the guys, I'm gonna go try to relax for a bit, and fer the love of god don't spend all of our credits, we still need to refuel and I have to pay you three."

"I'll only spend your and my shares Li, don't worry."
"Yeah, talk to you tomorrow Ueme."

He shut off the wristcom before she could respond and reached for his thermic lance. Although normally used for cutting through materials by heating a steel rod and blasting it with oxygen, the thermic lance also made a hand self defense weapon for miners when in close quarters. Liam spun around towards where he heard the footsteps from and scanned the dark streets, his augmented eyes letting him see deeper into the darkness than whoever was lurking. He spotted the silhouette of someone a few meters away from him and started up the lance, pointing it in the direction of his would-be assailant. The pressurized air helped to heat up the steel quickly and the area lit with a reddish glow. The mouse girl from the tavern nearly jumped out of her skin as the cutting tool lit up the alley.

"Please! I didn't mean any harm!" Liam quickly shut off the lance and set it down to cool, rushing over to help the woman off the ground.

"You were my waitress at the bar, what are you doing out here at this time of night?"

"I... I just wanted t... to talk to y... you but--"

"Calm down, take a deep breath. I'm sorry fer that, but you came outta nowhere and scared me. Let's start over, I'm Liam, and what's your name?"

She introduced herself and they moved to a more well lit area to continue their conversation for a while before deciding to get off the street. They went back to The Limping Spirit, got a booth away from the crowds and talked the evening away.

Liam woke up in an unfamiliar room, looking around he quickly remembered that he was in Marisa's apartment. After sharing stories and a few drinks they had gone to the mouse girl's apartment and enjoyed a wonderful night together. Liam took the ladder down to her kitchen to find a note apologizing for leaving him in her apartment, saying she had to open the bar. Liam chuckled to himself and wrote his ship ident and comm number on a loose piece of paper should she want to call him again. After helping himself to some water and fruit he took his

leave, making sure to lock her door. As he made his way back to the Tyche he got a call from Isok.

"Hey Nals, what's up buddy?"

"Where the hell have you been all night?" Isok screamed through the wristcom's tiny speaker.

"Jeezus, calm down! I happened to have been spending some time with a lady friend. Why, is everythin okay?" Isok's eyes pierced Liam's soul through the tiny screen.

"We're going to be stuck here until Ueme can repair the ship. No one will order us the parts for how few credits we have, and the closest mercantile center is one AU away and moving further out by the day."

"Simmer down Nals! Ueme told me she could get the Tyche up in two weeks time, just enjoy your time on this rock while you can." He could see the worry growing in Nals' yellow eyes.

"You know everythin works out for us in the end bud. Oh, and how much did we fetch fer the ore we had?"

"Only 3600 creds."

"That's not half bad for under half capacity! You and Bren get 900 each, and we have an extra 18 to put towards those parts."

"I guess, but what are we supposed to do for two weeks? In that time we could mine the rest of that field we have a claim on!"

"C'mon Nals, think of it as time off. Go relax, finally ask Ueme out, enjoy a break from being cramped in the ship."

Once he was finished talking to Isok, Liam returned to the ship to get an update from Ueme on the repairs and was again told, be it with less yelling, what had before, that they would be stuck on 52 Europa for no less than two weeks time, and there was a possibility of it taking longer than that. Liam called the others and told them to look for odd jobs so they could earn some creds in the meantime, they both knew, and had

already started asking around, but Liam always felt it was good for a captain to address his crew properly.

After he hung up, he thought about calling Marisa to see if she was free that night, but decided he'd wait a day or two. Instead he caught up with Brenan who was on his way into a fast food joint. Liam ordered a burger and talked with Brenan about how he was going to spend his two week reprieve, and Brenan told him one of the merchants needed a freelance programmer and he'd jumped at the chance. After his dinner Liam wandered down through the markets and asked about any need for extra hands and got a few offers for less than average pay. Any pay is better than none at all, he told himself.

The weeks went by slowly, Liam worked for many different merchants during the day and spent most of his nights with Marisa, he even offered her a position as cook on the ship. She was grateful but declined, not wanting to leave the place she'd called home for so many years. He pressed Ueme for updates every other day or so, and even offered to help him with the repairs himself. Horrified by the thought, she reminded him of his 'igneous' quick fix for a blown coupling he'd whipped up before hiring her, and the price tag of the ancillary systems that it had damaged. Liam quickly relented, while he owned the Tyche, Ueme being the one who kept it alive and afloat was the only one who could truly call it her ship.

Finally on the seventeenth day he got a call from an overjoyed Isok letting him know that Ueme was confident the ship would be able to make it to Earth where they could get the proper repairs. Liam stopped by The Limping Spirit to say his last goodbye to Marisa and then made his way back to the Tyche. After paying the dry dock owner for the time they'd spent there Liam used the last of the money he'd earned on 52 Europa to have the Tyche loaded into the colony's mass driver, basically a large railgun used to launch ships at high speeds, and

slingshotted towards Earth. It was great to be back in his ship again after a little over a fortnight of being landlocked. He calculated all the flight vectors himself, just in case the mass driver's aim had been slightly off, a few nanometers at the bubble colony would be a few hundred kilos by the time they got to Earth. He sent a massage laser burst to the facility they were set to land at to confirm their time and estimated coordinates.

As with most small ships, the Tyche could not maneuver very well in atmosphere, so landing consisted of using simple jump jets to crash into a large water tank. There were EM nets you could land in, but that always risked damaging vital systems, and was mostly used by smaller transport ships, or by companies that could afford top of the line EM shielding. The Tyche had a simple Faraday Cage built into the hull with an external EM field generator to stop solar radiation from tearing the ship apart. The trip only took half a day, and Ueme spent the entire voyage in the cockpit with Liam worrying about this and that, hoping she didn't make a mistake that would cause their untimely demise.

As they started on their final approach Liam adjusted the in-atmosphere boosters to slow their descent. The small jets slowed them to just under terminal velocity and it was enough to save the ship from a catastrophic impact with the water in the landing station. Once they bottomed out and floated back up to the surface, a crane lifted the Tyche out of the pool and loaded it on the back of a truck that took the crew to the nearest launch port for dry docking. Ueme had updated the list of required parts needed to update the Tyche; newer generation EM shielding, a Gen II mining laser, updated comms systems, and the latest coils for the mass driver were just a few of the things she wanted bought and installed. Liam looked over the list, priced it, and started making calls to place orders. By the end of the day he was nearly bankrupt, but in a few weeks time the Tyche would

be capable of traveling further into the belt for longer amounts of time, so the investment was worth it.

Liam kept in contact with Marisa via comm laser during the month it took to get everything delivered and fitted. Isok, as he did every time they landed on Earth, debated selling his share of the ship to Liam so he could stay safely on a planet, and as it happened every time, Liam convinced him not to leave. It took Ueme and Liam half a day to re-calibrate the ship's systems, and even then they'd have to calibrate again once they were out of Earth's gravity. With all of their new tech installed, and their rations stocked for several weeks of travel, Liam called the crewmembers to report back to the spaceport the following day so they could launch.

Chapter 2: An Odd Signature Detected.

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Isok contacted a belt surveyor using the port's long range comms and bartered for claims on a small field of S-type asteroids, as their previous claim had expired. They looked to make about 70,000 credits after the surveyor took his cut. Luckily they only had to wait about five hours before the Earth's rotation had them lined up for optimal launch. The huge Nymphai Hyperboreioi mass driver at this station was designed to launch anything up to a Funo-Watanabe Destroyer, so it would have no trouble launching a Schooner like the Tyche.

They were hoisted up into position and locked into the mechanism, the team braced as the countdown started, and finally they were being slung away from Earth's gravity well. Once up to full speed the Tyche's Bussard Ramjet had them going nearly 0.02 light speed, and at this rate they would be arriving at the asteroid field in less than a days time.

Once they got within ten thousand kilometers of the field Liam flipped the ship 180° and applied a full thrust to burn off their momentum. Once they had sufficiently slowed they switched to small reaction engines for primary drive and a compressed gas RCS system for maneuvering. When they finally got into position Brenan sent out a few drones to scan the area they'd purchased for rare materials. His celebrating could be heard throughout the ship when he scanned down three M-type asteroids among the many S-types.

One of the drones sent out a distress ping and reported a radioactive signature it had not seen before. Liam sent the data readings to the surveyor by laser asking whether he had seen this in his initial scans and asking what he should do. It would take about half an hour for the message to get to Earth, and the same amount of time coming back with a reply plus twenty or so minutes for decrypting. Until then they just quarantined off

Commented [6]: 1,079,252,848.8 KPH 1 c - Speed of Light 23,743,562.7 KPH 0.02 c - Max Ship Speed 553,500,000 KM average distance to belt

that section of the field and set the drone to continually scan down the source of the odd radiation signature.

In the other sections of the field they focused on mining the most profitable minerals first. Thanks to their newly purchased tech they could multitask, the primary mining laser would slag asteroids while the built-in tractor beam would pull the debris back to the ship for sorting. Meanwhile teams of their new drones would grab onto asteroids that had sufficiently valuable material deposits and position them close enough to the Tyche that the small boring laser could crack into it and extract pieces. The drones would then break down smaller pieces with their own onboard cutting lasers and deposit them in the ship's main hold where the crew could try to sort them in as orderly a fashion as they could. Platinum group minerals were held in the largest ore hold in the aft of the ship, a slightly smaller forward hold was designated for more common ore like iron, nickel, and cobalt, and slag material like silicates and clay were routed to rear hold to be used as propulsion materiel for the onboard mass driver that made up center column of all Engrstom hulls.

After almost three hours they finally got their response from Earth. The surveyor told them he had never seen a radiation signature like the one they found and to stay away from that whole section of the asteroid field because there was no telling how it could affect their equipment. He ended the message by saying he was going to be sending their initial report to a contact of his at a scientific consortium and asked them to send him any other data they could safely collect.

Over the next several days of mining they continued to send what little updates they could about the radiation source. The drone had mapped out a clear exclusion zone by day three and was beginning to circle in what was hopefully the source when on day five it went completely quiet. They couldn't even pick up a trace of the wreckage on any scanners and as expensive as surveyor drones were, they couldn't risk sending another one out to recover it.

Isok was beginning to go stir crazy, and Liam was growing concerned, *Nals has always been a little uncomfortable off planet, but I've never seen him this bad.* He asked Ueme to man the helm incase they finally got a message back, and went below deck to the crew quarters to talk with Nals.

Pushing off the ladder Liam glid down the hallway and grabbed the handhold next to the door labeled "Nalrque". Knocking on the door garnered no response so he pressed the intercom on the door and just started talking, figuring if Nals didn't want to hear him he could just mute the feed.

"Hey Nals... It's Liam. I jus came down t'see if yah wanna talk about what's bug.."

Before he could finish the door slid open and Nals just glared at him, arms crossed, his whole body shaking with uneasy tension. With a huff Nals clicked his heels, activating the mag boots he usually wore, and walked back into his quarters ushering Liam to follow.

"Really Liam? You want to... to talk about this situation? We're two days away from Earth, parked next to a source of radiation no one's ever heard of, we're going to be in total darkness in a few hours, an--"

"What d'ya mean we're gonna be in total darkness?"

"Do you not read my shift reports? Mars is going to pass directly between us and Sol, we'll be in eclipse for at least a few days."

"I read every report you guys leave fer me cover to cover Nals, and that was absolutely not in your last one."

Commented [7]: 704 Interamnia is closest colony

"Khara! But I swear I logged it in my report... It's definitely in my observational notes. Call Brenan and have him look them over."

"I'll go do that, try to get some rest buddy. And bright side, I'm pretty sure we're far enough away from Mars that it won't be a total eclipse, we'll still have a pretty bright corona."

"I hope you're right Li, it's just been one thing after another. I think I'm gonna need an extended stay on earth after this. I need to go home, feel the sand under my feet, see a blue sky above my head."

With that Nals checked his watch, disengaged his mag boots, gently lifted off the floor and began reciting the Asr Salah. Liam left his friend to pray in peace and pushed up andout of Isok's quarters, making sure to hit the door switch on the way out. Once in the hall he pushed off of one of the walls in the vestibule to propel himself over to the ladder and clambered up to the observatory. He signed in to the computer console and checked all of Nals' observation notes from his last shift.

Sure enough, saved in the notes, but not included in the document was the system map data showing that the section of asteroid belt they were in would be cast in the shadow of a Martian eclipse for two to three days. He stopped at a terminal in the hallway and quickly sent the command to recall all the drones and shut down the mining lasers so they could try to recharge the capacitor batteries as much as possible before they lost solar.

After rejoining Ueme in the control room he filled her in and discussed their options; Abandoning the field and sitting in the light until Mars passed, trying to last the darkness and save power, or just taking their haul and going home were their best options. In any case they'd have to abandon the irradiated drone, and Liam wasn't too keen on only getting half a haul two missions in a row, so he called a meeting in the common area

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just aft of the command module so everyone could have a say in the decision. Brenan wasn't a fan of abandoning another haul so, much to Isok's dismay, they wouldn't be returning to Earth. Liam was in favor of averting the ship to a sunny region and waiting out the eclipse, but Ueme wanted to test the new battery system she'd installed. Suddenly there was a loud thud, the Tyche shook, knocking all the crew members down, and alarms started screaming. Everyone scrambled to their feet and attempted to make their way to the stations to assess what had happened. Could a fast moving piece stuck some asteroids hundreds of kilometers away and dominoed a cascade of rocksinto their ship? Had an electrical fault caused the RCS to drive them into an asteroid?

Once he'd gotten to the nearest console Liam pulled up the telemetry and found that they had indeed been in a collision and were spinning. When he tried to stabilize, only the fore RCS thrusters fired.

"Ueme, I need diagnostics! We're gettin nothin from the aft thrusters!"

"On it!"

"Capt'n, I'm getting systems down across the entire ship" Brennan cut in "I'm getting hundreds of errors logged, much more of this and the computer might crash."

"The last operation before these malfunctions was an alert that all the drones had returned to their bays" Ueme called out over the screaming klaxons.

"How could that happen?" Isok yelled from navigation, "I thought survey drone 2 was lost?"

"It must have gotten the RTB signal Liam sent out to other drones" Ueme replied.

"Can someone please kill these alarms so we can stop yellin!" Liam shouted.

"Can do" said Brennen, and with that the alarms slowly began to wind down to silence. "We're still getting enough

Commented [10]: https://everything.explained.today/U nbihexium/

Commented [11]: In rewriting this section, when the drones get called back the contaminated one from earlier will respond to return call and bring the isotope back onto the ship causing the probles, nix the red cloud in pace idea, use element 126 instead a 500 million year half life radioactive element we cant sythesize the can be a pre cursor to the aliens from warmind

critical errors to cripple the ship's OS, but I set the logs to dump immediately, so while we won't run out of ram and crash the system, we're not logging anything new. So we can only see things as they happen until we solve this."

"Bren, can we re-launch the drones and get whatever that survey drone brought onboard off the ship?" Liam asked.

"Let me give it a try."

"Anything?" Isok pestered.

"No can do, I'm not able to send any commands, there's too much going on and the system won't respond to new inputs.

"Kurva" Liam muttered a curse under his breath, "Okay, Ueme, do we have an internal sensors online in the cargo hold"

"The only thing I can see is that cargo is pressurized, but that sensor is mechanical."

Liam sighed. He knew what he should do, but it wasn't ideal, and if he miscalculated it could even kill him. He was going to have to try to dislodge the drone from its charging dock and then manually vent the O₂ from cargo to suck it into space and away from his ship. So many things could go wrong with this plan, his line could snap and he could get blown in to space, then splattered on an asteroid, his suit could get damaged by debris during the explosive decompression, and those were only if the radiation from the drone didn't kill through the rad suit, no one had ever gotten back to them about the radiation signature was Beta, Gamma, or Neutron, just that it wasn't recognizable, so it total guesswork as to whether their E.M. and rad shields would even protect them from it.

Once he had finished fighting with RCS and stabilized the ship, Liam aimed himself for the nearby airlock and kicked off, grabbing himself an EVA suit and a rad suit pullover. He'd only managed to halfway clamber into the bulky hardsuit before Brennan caught sight of him and rushed over to the airlock.

"Capt'n, what in God's name are you doing?"

"Exactly what it looks like Bren, and I know you know there's no other way with the system faulting like it is."

"I'll go Capt..."

"Absolutely not, I'm the one responsible fer your guys' safety. Plus, if anything happened to you, there'd be no one to reprogram the Tyche's computers."

Once he was finished locking in to the EVA suit, he gestured for Brennan to help him attach the radiation suit into the suits' onboard controller.

"Once I'm back there I'm goin to try to dislodge the drone. I think I'm gonna have'ta dump atmos in the entire hold, there's no tellin how much dust that thing brought on board, and if it's causin this much hell just sittin there, we can't let it cycle into our reserve O₂. I want you to shut down the computer system once I'm back there just in case any of the failsafe's try to do their job and prevent decompression, we can't have any of that dust stay in our ship."

Brennan, normally stoically faced in any situation, for the time Liam had seen since college, had a worried look about him.

"Capt'n, are you sure this rad suit'll do anything? We have internal shielding in the cargo hold specifically to isolate radioactive elements from our electrical systems, and this element, whatever it is, doesn't seem to care."

"I've thought of that, once I'm out tell Nals to grab all the anti-rad from med." Liam checked all of his connections and activated the E.M. Radiation shield. "Get out of the airlock now, I'll try to use comms once I'm ready but if there's interference just listen for me bangin somethin heavy on the superstructure before you cut the system."

"Aye Capt'n, I'll let the others know your plan once you're outside."

"Thanks for that. And don't let either of them try to come help me, if this doesn't work, we don't have enough medicine for everyone. Lord knows if we'll even have enough for me." With that he tapped his wrists on his visor signaling he was good to go and activated his mag boots, walking back to the air cycle controller. Once Brennan had cleared the airlock he hit the button to begin the depressurization of the tiny room.

Liam loved spacewalks, as he walked along the Tyche's hull to what could be his death, he took a moment to appreciate the beauty of the endless expanse of the void. Billions of stars in the universe, each one I can see is millions of years old, the light only gettin here now. I wonder if we'll ever leave the grasp of Sol. Even if I don't die here today, another solar system is something I'll never get to see in my lifetime. Once he had reached the cargo airlock he climbed in, wishing there was a way to do this without wasting yet more of their precious oxygen, once the interior door opened it would be contaminated and have to be vented with all rest of air in the hold. After a few minutes of mulling things over in his head Liam realized the airlock wasn't cycling. Great, another system down, he thought. Pulling the panel off the wall, he engaged the manual release on the interior door and pried it open, a rush of air knocking him back at first as it rushed to fill the small vacuum he was sitting in.

Cargo was in complete darkness, turning on his headlamp almost made it worse, the pressure surge of opening the airlock door had kicked up a cloud of dust that had no way to settle in zero G. Worried about getting too close to the drone bay for now he followed the wall towards the amidship vestibule where he knew he could find some long pieces of conduit that he could use. Finding several long pieces, he traced them to their junction box and took some photos with his suit's mounted camera, hoping both that these weren't critical systems he was unplugging, and that if he survived, both Ueme and Brenan wouldn't kill him for not taking the time to properly label catalog these things before wantonly disconnecting things.

Once all the wires had been separated from the junction box he unscrewed two three meter length pieces of conduit.

Screwing together the two lengths of pipe, Liam made his way toward the drone compartment. Heh, the proverbial 20 foot barge pole. It's too bad I still have to touch the drone with it. He thought and chuckled to himself. As he made his way aft, the silence started to get to him. It took him a second to realize that the familiar crackle of the geiger counter in the EVA suit had gone completely quiet. He took a few deep breaths and checked the small indicator or the E.M. shield, thankfully it was still operational, and had a charge for at least another hour. Taking a deep breath he widened the wave modulation on the shielding, praying that a broader spectrum on the shielding would offer more protection against whatever wavelength this mineral emitted, albeit at the cost of valuable time. I'll just have to work a bit quicker.

Climbing inside the cramped confines of the drone bay, Liam was slightly relieved that the dust cloud wasn't as thick in here. Locating survey drone 2 in it's dock he got to work poking and prodding at it with his improvised tool. After several minutes of getting nowhere he accepted that he was going to have to go up to the drone and unhook it himself. Deactivating his mag boots, he kicked off the floor grabbed one of handholds on the drone's outer housing, reactivating his boots he swung his body around and found purchase on the wall. Quickly attempting to pry open the docking clamps his vision started to go blurry. He leveraged himself against the wall and jammed the conduit underneath the drone, using all of his remaining strength to break the coupling free. Once it finally gave and disconnected, the drone went spiraling across the room and slammed into the opposite wall letting out a cloud of presumably highly radioactive particulates. Liam kicked off the wall towards the exterior door. As he felt the nausea and

lethargy begin to set in he cursed to himself, wishing he'd spent the extra money to Tartigrage DNA spliced into his.

He keyed the comms and tried to call Brennen only to be met with more perfect silence, his proximity to the drone had well and truly fried any electronics in his suit. He hadn't even realized that his light had turned off, or that his mag boots no longer kept him anchored to surfaces. He wondered if the E.M. generator was even still functioning, the small indicator screen had died, so there was no way of knowing how much if any time he had left before losing what was ultimately a hail mary in the first place.

Refocusing on the task at hand Liam pushed himself towards the front of the hold and began pounding against the bulkhead hoping Brennan would hear it and shut down any systems that weren't already disabled. Liam couldn't tell if seconds or minutes had passed before he finally heard a distant clang of confirmation. With that he, as quickly as he could in this state, made his way to the large starboard cargo door and began to manually disengage the locks. He caught himself before opening the door to vacuum and attached his harness to a nearby latch point and sured it up so he could only reach the door mechanism with no extra slack. Upon disengaging the last latch, the doors burst open, the explosive force of roughly sixteen thousand cubic meters of atmosphere forcing its way into the endless expanse of vacuum surrounding the ship. The last thing Liam saw before losing consciousness was a column of smoke and debris rushing away from him into the void.

Chapter 3: Blackout

Brennan listened as the airlock cycled and watched out the porthole as Liam walked along the hull toward the cargo hold. Once the captain had disappeared past the edge of his view he rushed to the command module to inform Ueme and Isok what Liam was planning.

"He did what!" Isok hollered when Brennen explained what was going on.

"The Capt'n asked you to get down to medical and gather up all the anti-rad supplies we have in case his shielding fails. Ueme, when I power down the Tyche's systems and the Capt'n opens that breach, the pressure is going to put us into a spin, and if the system is down we won't have RCS to stabilize us, do you think you can try bypass the computer and wire a controller directly into the RCS module?"

"I can try, but there's no guarantee it'll work."

"Capt'n will most likely go for the starboard hangar door since it's the closest'ta the drone bay, so I would focus on getting manual control of the port-bow RCS to counteract the spin."

"I'll get to work on it then."

And with that she ran off to grab a toolbelt and began ripping into the wiring harnesses in the cockpit to hopefully stop them spinning into an asteroid and causing more damage. Brennen left her to it and made his way to the computer core to start getting to work in initiating a full system reboot. He'd managed to manually stop some non-essential processes that were contributing to the error cascade that was still crippling the system when Isok returned from the medical compartment with arms full of pressurized IV injectors, designed for administration in zero G. He let them float where they were and approached his fellow crewmate with a pleading look in his eyes.

"How's it coming Bren, have we heard anything from Liam since he went out?"

"Thanks for grabbing the med XO and no, the Capt'n is either still radio silent or his radio is disabled."

"How is going to let us know when he's ready if his radio isn't working?"

"Well, I'm working on getting the system prepped for an emergency shutdown now, so you'll be able to press a button to initiate it. As for if anything happens to comms, the Capt'n'll bang on the bulkhead and I'll holler down to you to press it."

"Me? W.. w. why are you having me do it? You're the one who knows what he's doing, I don't know the first thing about programming!"

"Someone has to go out and make sure the Capt'n can make it back aboard. Ueme will be busy preventing us from spinning into debris, and no offense XO but you have shaky space legs on a good day, and I'll need to get to the back of the ship quickly once the Capt'n sends his signal."

"N.. none taken Bren... And all I'll have to do is press a button on that terminal."

"Unless it freezes up again, then you'd have to just flip the main power breaker, but let's hope it doesn't come to that. It could cause some OS corruption, and that would be just one more thing on top of it all, wouldn't it?"

Brennan finished up at the terminal and showed Isok what to do, and how to manually shut the system down if the program didn't work. Once he was confident that his terrified friend could manage to shutdown the system no matter what happened, he left to check in with Ueme. She had made good headway with jerryrigging the thrusters to the command chair, but she was trying to be careful enough that it could be put back together properly. Brennan offered to help but given how cramped the cockpit was without panels pulled free and wires unbundled, it was merely a cordial, if empty, gesture. She declined of course and he set back to get ready for a spacewalk.

Brennan had gotten suited up, save for his helmet, and was patiently awaiting any signal from Liam. He checked over the ruck of supplies he was going to bring out with him for the fifth time and confirmed that everything was indeed still there. He hated being sedentary. Standing around and waiting for something, or nothing to happen was what he'd done as a Corp merc before Liam had hired him. The pay was much less than at the Klutotéhknix R&D plant he'd guarded; but in asteroid mining, there was always something going on, especially for someone experienced with both mechanical and electrical systems. He didn't hold a candle to Ueme in the latter, she had a PHD. in electrical engineering after all, but the knowledge gap between her and him was about as big as the gap between both Liam and Isok and himself, so in their eyes he was also a master technician.

As he was getting ready to rummage around in his pack again to pass the time he heard a thunk. Leaping up, he quickly glid over to the vestibule and put his ear to heavy metal door, waiting to hear for a second confirmation that Liam had successfully loosened the contaminated drone. After several moments of silence, he began to think it may have just been his imagination, but then suddenly several more slow and methodical bangs came from the other side. He quickly keyed his mic and tried to call out to get verbal confirmation that his part was finished. When he got no reply, he instead called up to Ueme to make sure she was ready to counteract the spin they would surely be going into at any moment.

"Are you ready with that RCS Patch Ueme?"

"Just about, give me a minute, I need to check something first."

[&]quot;And you XO? Are you ready to reset?"

[&]quot;Ready as I can be Bren."

"I got it Bren, give Liam the go ahead, I have full thruster control."

"Aye."

Brennan banged a heavy wrench against the bulkhead to confirm to Liam they were ready and then jumped into the nearby airlock and started cycling the air so he could leave. Once outside he clipped his tether to one of the safety rails running the length of the Tyche and radioed Isok.

"XO, I'm outside, you need to power down the system now so the Capt'n can open the hangar door."

After a few moments of silence while he shimmied aftwards Isok replied in a slight panic.

"Brennan! This isn't working, I'm hitting the sequence you showed me and it's just stalled on the same screen, nothing is working!"

"XO, Isok. take a deep breath, remember the circuit switch showed you, the one on the bottom half of the mainframe column. You just need to bull that breaker hard until you hear a click and all the lights go out."

"B.. b. but you said that that could cause serious malfunctions?"

"I know, but we don't have any other choice. Once you pull that lever though all of the backup systems will be down too, so if I don't signal back in about ten minutes you and Ueme need to get O₂ packs, and if you still don't hear from me thirty minutes after that, switch everything back on and reactivate the SOS beacon."

Brennan was about twelve meters from the cargo hangar doors when he felt the hum of the ship beneath his feet die down to nothing. Looking around he could see all of the exterior lights had gone out, and even the drive rings had ceased rotating. He refocused his attention on the large door that lay before him, all of the various machinery on the Tyche had fallen quiet, but he could still feel a vibration in his feet. Taking that as a good sign

he braced himself and waited. Once Liam had gotten the hangar doors open, the pressure wave was going to throw the Tyche into a hard spin and if he wasn't very careful he could get thrown out into space and become just another piece of debris among the belt.

When Liam finally managed to get the release, the Tyche violently shook and Brennan could feel the pull of vacuum trying to fill the large cargo hold in front of him, and he watched as debris, the drone and even some of their equipment sailed off into the far reaches of space. He hadn't seen Liam in the discharge, but he could have been mixed up in the first few feet of thick dust that went out, Brennan carefully made his way the last few meters to the opening, careful not to lose his footing, knowing that while he couldn't feel it, they were probably in a slight spin, and since Ueme had only rigged up the port side RCS, she would have to very slowly bring them to a stop, as she had no counter rotational force.

Poking his head over the threshold, he was elated to see Liam strapped to the wall. He carefully switched his tether to the interior railing and slipped inside, finally making his over to his captain. Liam was either unconscious or dead, but it was difficult to tell in the hardsuit with all the electronic systems disabled. Brennan unhooked Liam from the wall harness and attached him to his own safety tether. He attempted to call the others on the comms but only getting static. The Capt'n must have soaked up enough rads to interfere with comms. This isn't good. He decided to unhook from the wall and use his mag boots to cross the hold. After a bit of hassle he managed to get both Liam and himself into the small airlock that Liam had used to enter the hold.

It didn't take long for Brennan to lock both doors and manually trigger the oxygenation cycle. Once his suit read they were in breathable atmosphere he carefully removed his helmet and took a breath of the stale air. Deeming it satisfactory to his purposes he got to work on removing Liam's Rad suit and helmet. Once he'd finally disentangled the now useless nodes of the E.M. generator from his captain's hardsuit he got to work on checking for a pulse. While it was incredibly shallow Liam did still have a pulse, so Brennan got to work administering the cocktail of antirads along with a myriad other drugs to try and keep Liam's organs from failing. Once he'd gone through the gamut, and exhausted the supply of drugs he'd brought, Brennan resealed Liam in his hardsuit, got his own helmet back on and stowed all of the loose items floating around the cramped room in his ruck before he slowly leaked the air back into the exposed cargo hold.

On his way out of the ship Brennan attempted to close the hangar doors, but found it was too difficult with an unconscious body attached to his back, so he slowly worked his way back forward towards the hab module where he'd left from. He stuffed Liam inside, and got to work on triggering the manual release. He was a bit worried as it had been a bit over forty five minutes and the lights weren't back on, so he desperately hoped that Isok had just misunderstood some part of the startup procedure and Ueme was busy stabilizing the ship to do it correctly, rather than more probable and problematic event of the system just being too corrupt to reboot.

He only bleed off half of the tank of O_2 since would have to go back out and close the cargo hangar doors. The airlock depressurized with a pop when he opened the interior door. He quickly checked the sensors on his suit to make sure there was adequate oxygen in the room, and removed his helmet upon seeing lower than regular, but stable O_2 readings. He tried his comm again while removing his helmet and was still getting nothing but static. Worried, he hooked a new O_2 tank to Liam's rig, tethered to the wall in case of an emergency and made his way up to command to find the others. He stopped by the

computer core to see why it had not been rebooted. The circuit breaker had been switched back on but the mainframe didn't seem to be receiving power. He hoped it was just a fuse and continued on his way to the front of the ship.

Neither Ueme or Isok were in the command module so Brennan returned to the computer core and tried to diagnose the power issue. He couldn't find anything wrong with the power supply itself, nor did any of the fuses appear to be blown, but try as he might, he could not get the core to power on. Maybe when Isok tripped the breaker it discharged the supercaps and the battery died recharging them? Whatever the issue he would not be able to figure it out from here, so he returned to Liam and grabbed him along with some supplies from the airlock before making his way down into the lower levels of the hab pod.

Ueme was in the med-bay treating Isok for an electrical burn when she heard Brennan clambering down the ladder and yelled up to him.

"Bren! We're down here in med, is Liam alright?"

"He's breathing but unconscious, we probably need to get him hooked up to fluids. Is the XO alright?"

"I'm fine Bren, I just got a shock when I tried to reset the breaker."

"Glad you're okay XO. Ueme, how're the power cells looking? I couldn't get any juice to the mainframe, and I didn't see any bad fuses or burned out parts."

"I'll have to go check, but we don't have much time before the eclipse. If you can't get the computer up and running I might need you to help me reroute a hard line down here so we can at least run the CO₂ filters and heaters."

"Agreed, once I get the Capt'n situated I'm heading back to the computer core to try and trace the issue."

Isok agreed to stay and get Liam situated in the med-bay while Ueme and Brennan went off to conduct repairs. As he was hooking his old friend up to the rudimentary medical scanners they had, Isok reminisced about his and Liam's time in college. They had both gone to the Borzovsky Aerospace Institute in Belarus; Isok had gone to the school for business and economics, hoping to get a job with one of the many companies that boasted alumni from the institute, but Liam had gone there specifically to gain the knowledge and skills necessary to become a pilot and open his own company. They'd been assigned to be roommates in their sophomore year and became fast friends. Liam was charismatic and over their years in school together he had eventually convinced Isok that they should go into business together.

After graduation Liam had taken out a loan and registered his business, and for three years they'd prepped and searched for a suitable starship. Liam had eventually dragged him onto a freighter bound for Ceres to inspect an old Engrstrom Schooner. Isok had wanted to find something less expensive or more reliable for the price like an Ares or a Mara, but Liam had fallen in love with the thing on sight. Isok had even joked they should name the ship the Tyche since their company was already called Fortuna, and they would need all the luck they could get. Liam had loved the idea and registered the ship that day.

The monitor began to beep and read out Liam's vitals, Isok grimaced, recalling why this had reminded him of college in the first place. During their senior year Liam had gotten a huge dose of radiation while doing an engineering assignment and Isok had visited him in the infirmary. He had looked just like this, albeit before they'd gotten the biomorph procedure it was easier to see the burns and discoloration on his skin. After about ten minutes had gone by Liam slowly regained consciousness and looked around confused before noticing his

friend going through a cabinet on the other side of the room. He spoke with a labored breath, only getting out one or two words between breaths.

"Well, I'm pretty sure.. it was Gamma radiation.

"Liam! When did you wake up?"

"Jus now. I think, if we make it outta here.. I'm gonna have to get my genes reinforced, so this shit.. doesn't happen again. Heh. How did I get back in the ship? Last thing I remember.. was ventin cargo."

"Brennan left right after you sent the signal for us to power down. He showed me how to restart it but it uh.." he gestured to his bandaged hand "didn't really work. He's up there no trying to get us back online."

"I'm gonna have'ta.. kick his ass.. once I'm not dying, I specifically told him.. not to come out for me. How's he doing?"

"His comms stopped working once he got close to you, but otherwise I think he's fine. He ran a full decontamination before bringing you down."

"Well that's good at least, Ueme and yourself, besides the hand of course?"

"Good, she's good. I'm... fine, it's just an electrical burn. What happened back there?"

"Well, the E.M. shield.. on the rad suit did nic as far as I can tell, but I don't think.. I'm having seizures, so hopefully... it wasn't an.. incredibly lethal dose."

"And the drone is gone?"

"Blew the fucker., out the hatch, will all the dust, it kicked up."

"Well that's one small relief. I'll have to make sure to tell Bren to drop that drone from the cluster when he gets the system back online so it doesn't come back."

"I'm.. fine fer now, you should go.. help the others."

"Are you Li? I'm not a technician, I'll probably just get in their way."

Commented [12]: pronounced Knee-ch

"Just give me.. a new comm, and go offer.. them a hand. I'll call if.. I start getting.. worse."

Isok handed him a new comm, and after a mic test to confirm it was working he left Liam in the med-bay, and made his way back up the ladder and out of the hab module. He looked around and found Ueme back in the computer core. He ducked in and shivered, wrapping his arms around himself for warmth.

"Hey Nals, Bren went back out to close the cargo hangar doors and assess damages. How's Li doin?"

"Liam woke up and seems in good spirits, all things considered. I gave him a working comm so you should be able to call if you need to. Have we managed to find the short in that thing that zapped me?" he gestured to the computer's main column.

"So my theory is, once that radioactive dust got inside our shielding it started ionizing the components in cargo, and super charged the RTGs. When you killed the computer all the systems that were draining power shutdown, but the batteries and supercaps kept getting a charge from the dust, so when you flipped that switch and completed the circuit it discharged one of the capacitors and fried the system."

"That sounds like... worst case scenario Ueme..."

"It's not good, and I need to wait for Bren to check the RTG compartment before I know how bad the damage is, but there's a chance that only the capacitors are blown and the batteries are just drained. If that's the case, we'll just have to wait out the rest of this eclipse, try to recharge them, and limp to Interamnia."

"Is there anything I can do to help?"

"Command is on an isolated power loop, you could try connecting the comm system to the power bypass I set up to run the thrusters and see if you can send out a distress call. Everything in there is labeled so it shouldn't be a problem, just find the splice I made, pull it, and splice in the comms cables."

"Sure, I'll get right on it. Let me know what Brennan finds so I can send an accurate distress call when I get it set up."

With that Isok pushed out of the room and headed for the front of the ship leaving Ueme alone in the cold dark room full of dead machinery. He's either doing much better, or he's lost all hope of getting out of this. She turned her attention back to the illuminated datapad in hand and continued testing parts to find the fault, praying that she was right and none of the new batteries she'd just installed had already failed.

Chapter 4: The Long Dark

Ueme had tested most of the components on the mainframe and only found a handful that were damaged at all, and none that didn't have redundancies in place in case of failure. Glad that they would theoretically be able to reboot the system once the power issue was solved she made her way to one of the electrical closets where she could access some of the capacitors she was hoping were the point of failure. Relief flooded over her when she shined the light into the crawlspace and saw scorch marks and fused components. It's not often I'm thrilled to see irreparable damage. Brennan called in over the comm in patch bursts, barely getting through without the assistance of the onboard repeaters.

"Uem... 've got... lem.."

"Bren, can you repeat that? You're not coming through."

"Fou... the six... radi... moele... gener... aged..."

"Bren, please repeat!" She ran to the airlock as quickly as she could to close the gap and try to hear what Brennan was saying.

"I'... try... onnect... the remai... g ones an... transfer them t... ont of the ship."

"Brennan, repeat your transmission, you're not coming through! What is going on out there?"

"Are you reading me now?"

"Affirm"

"Four of the RTGs are slagged, I'm gonna disconnect the remaining two and try to hook them in with the ones at the front of the ship. We're gonna need as much power as we can get if we wanna power the O₂ scrubbers long enough to live through this eclipse."

"Chikushou. That's what I was afraid of. It's a good idea Bren, do you want me to come out there and give you a hand?"

"Negative, there's barely enough air left in the reservoir to do one more cycle let alone three. We should probably

Commented [13]: https://www.nature.com/articles/s41 598-018-30815-w

Commented [14]: https://www.hindawi.com/journals/bmri/2014/169459/

quarantine in a confined area to ease the load on the scrubbers, can you start routing a power line from command down to medical or the engineering bay? Both of them can be put on isolated air circuits."

"Good thinking, I'll see if Li's up to helping me seal off the med-bay and get to work on routing the power."

"The Capt'n's awake?"

"Yah, Nals said he was awake and in good spirits."

"Good, I was worried there for a bit. Well, let's get to it, I only have another two hours of O_2 in this tank and we can't afford to cycle the airlock any more, so I have to get to moving these generators."

"Copy that Bren, when you make your way to command let Nals know what to do on his end, he's trying to get the SOS beacon running so he can help with the battery patch if I'm still down in the hab pod, over and out."

Ueme headed back up to the cockpit and filled Isok in. It was difficult for her, watching what little hope he'd managed to hold on to dissolve away, but she assured him that Brennan had a solid plan and to keep doing what he was doing until Brennan needed him to help with the inside work. She figured if she kept him working on something he could stave off the panic attack that had been building since he'd noticed the eclipse.

Heading down to engineering to grab a few spools of high voltage cable, Ueme decided to pop in to medical and fill Liam in on what was going on. Liam was of course not resting and had unhooked himself from the stretcher and gotten to work cataloging supplies. When Ueme announced herself he gave her a sheepish grin and moved to sit himself down on the bed.

"You are aware that radiation poisoning is still lethal, right Li?"

"In the.. four years.. we've known each other.. have yah.. ever known me.. to sit still.. fer this long? Or die.. fer that matter."

"As compelling of an argument as that is, you really should save your strength, Bren's outside dragging the working RTGs to the command module so we can splice them into the EDB and life support. If you insist on doing something, could you work on isolating medical from the rest of the ship so we don't overburden the system?"

"Yah, I think I can.. handle that.. there should be.. some emergency.. hull sheets.. in engineering.."

"I'll grab some and leave it with you on my way back up, just hold tight."

Leaving Liam to his own devices in the med bay and continuing down to engineering, Ueme relaxed for a moment and let out a sigh, allowing the gravity of their situation to fully wash over her before taking a deep breath, straightening herself up and getting to work hunting for the parts she needed.

Back up in the cockpit Isok was working on reactivating the Emergency Distress Beacon, he was thankful that both of their engineers were meticulous with their labeling. He thought back to when Liam had first brought him to Ceres and shown him the Tyche. Most of the electronics had been torn out, the wires stripped for their copper, Only the life support and reaction systems still functioned. They had gotten it for a steal, but Liam was always more of a big picture thinker and the early repairs he'd performed were messy at best and indistinguishable from the pre-repaired rat's nest of wires at their worst. When Liam had met Ueme she had, appalled at the state of the Tyche, ordered him out of the engineering bay so she could enact the proper repairs. He'd offered her a job on the spot, and she'd managed to solve a majority of their technical issues in the six months they were dry docked on Lua. Hiring Brennan, who also

had a decent amount of experience as a starship mechanic, had only sped up their repairs and gotten them back out and about.

The lights blinked and Isok got a shock through his hand as he had, while lost in thought, grounded out a positive lead. *Ibn il- If that had been on main power it could have killed me* he muttered under his breath.

"Unlikely X.O. under full load the safeties would trip if the system detected a short, and kill power to that sector."

"Ya lihwy Brennan, are you trying to give me a heart attack? Where even are you?"

"Still outside, Ueme had a good plan, but I need to talk you through splicing these cells into the power junction in there. Also, you're broadcasting on shortwave, that'll kill your com's battery if you're not careful."

"Thanks, now what's this plan Ueme had?"

"Most of the power cells are dead in the rear compartment, so we're splicing all the operational ones into the EDB and running a line down to life support so we don't suffocate."

"That would certainly be the preferable outcome. Okay, I think I just about have the beacon working again so walk me through how to do this."

Brennen instructed Isok over the comms while securing the cells he'd carried up to the hull and wiring them into the solar arrays that the Tyche had integrated into its hull. The trips fore to aft and back again to bring all of the undamaged power cells to the command module had taken almost three hours and left him with just over half a tank of O₂, luckily Ueme had returned topside on his second trip and taken over helping Isok so he could focus on getting the outside work finished.

The longer he stayed out the tougher it got to work. Mars, hundreds of thousands of kilos away was creeping across the sun and slowly blocking out what little light they were still getting, and while he still had five or so hours of oxygen, without main power, Brennen only had a limited amount of battery life in the EVA suit. The suit's built-in flashlights didn't draw much power, but every watt wasted on light was a watt not used to power the E.M. shield protecting him from the solar radiation that was still bombarding the ship, whether light was reaching them or not. The worst part was constantly going between flipping his sun visor down so the corona didn't permanently damage his vision, and up so he could actually see what he was doing in the muddy twilight.

Brennan was glad he'd been the one to install the power cells originally, he needed half the time and very little if any light to go through the steps of undoing his own work. Ueme had a completely different system for routing, splicing, and the like, which was why they both meticulously documented their work. Getting the batteries out of their compartment wasn't the problem though. He had no power regulator or access to any kind of overload safeties, and all of the power cells had to be wired directly into the solar charging circuits. If anything shorted out, it could cause a cascade and damage what few power cells they had left.

Brennan's suit alarm chirped letting him know he only had an hour left in his tank. He quickly finished making the last few connections and made his way toward the airlock. Eventually, the last few hours of work caught up with him, and he realized that for the last several hours he'd been tensing every muscle in his body, just waiting for something else to go wrong. Finally inside the relative safety of the airlock, he pulled shut the outer door, engaged the clamps, and flooded the small antechamber with the last bit of reserve O₂ it had. Staring at his wristcom and watching the pressure climb up to 101 kPa, he cracked the seal on the suit as soon as it hit and took a deep breath of the stale recycled air. It was almost indistinguishable

from the canned air he was breathing seconds ago, but this was ship air, and that made all the difference in the world to him.

Back down in medical Liam had been hard at work sealing up the isolation bay and helping Ueme pipe the closed air system into the life support. He was exerting himself more than he should on a cocktail of chemo drugs, but he took solace in the fact that passing out on zero G just left you floating against a wall rather than face first on the ground.

Liam had to rest often, and he protested whenever Ueme tried to pick up the slack for him, but eventually they got the room isolated. Isok had come down from command and had begun loading supplies into the sealed room from the galley. He'd only managed four trips up and back before he heard the airlock cycle and scrambled off to the rear of the hold to see if Brennan needed any help.

"How'd it go out there Bren? Did you manage to get everything in order, are we okay?"

"I did what I could X.O. It was a rough patch job, and everything is exposed to the elements, but as long as nothing drifts into my wiring and shorts out our last few batteries we should be fine for at least forty hours."

"We only have two days of power?"

"Probably a few hours less now, I calculated that based on the total draw when I was hooking them up."

"So we're going to suffocate in two days time..."

"We could run the life support module cyclically and only process the CO₂ filters every other hour, we be on the edge of hypoxia the entire time, but we could eek out our up time to sixty or seventy hours, which might be enough to get us through the blackout."

"So either way it's not looking very good for us..."

"Not particularly, but if it's worrying you that much, you could probably have Ueme put you under for most of it, I think we still have some of the coma drugs in the medical cabinet."

With that he gave Isok a curt nod and headed down the ladder to the medical bay. He stood there for a few moments lost in thought before following Brennan back down to the lower decks of the Tyche.

Back down in medical Liam and Ueme were finishing up the isolation room when Brennan came in and filled them in on the situation. Liam just closed his eyes for a moment and went back to work without a word, while Ueme brushed past them mumbling under her breath that she'd need to update the emergency message. Once Isok eventually made his way to the room which would be all of their homes for the next several days he spoke with Brennan again before leaving the supplies he'd grabbed and headed back to the upper deck to try and find more oxygen tanks and food.

Chapter 5: Answers

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Ueme slowly opened her eyes, she was confused as to how she was alive, the last thing she remembered was Liangiving her a lethal dose of insulin. She slowly looked around the room and found she was floating in the hallway with her crewmates huddled in blanket sling with her. Liam was hovering in the doorway to the cockpit, doubled over in pain. She checked Brenan and Isok's pulse and found they were still alive but barely breathing. She untangled herself from from her crewmates and pushed off the wall and glided towards her captain to check if he was still alive. Like the others his breathing was there and his pulse was weak. She peeked into the control room and noticed that they were moving. Not adrift, but not a decent traveling speed/ She decided that her friends lives were more important than the mystery of how and where they were going, and clambered back into the hold to find their medical supplies. She found the used morphine syringes and quickly looked for their Naloxone supply to counteract the overdose they were most likely suffering. She gave the others what she assumed was the proper dose based on the amount of missing morphine, then moved them into the control room and tied the blanket down so they wouldn't be floating around during flight.

After Ueme got the crew in order she assumed control of the ship and began reviewing star charts. Liam had apparently locked the Tyche in autopilot with a heading for 52 Europa. They must have only recently escaped the asteroid field because Mars was still quite large behind them, she sent a comms laser to the colony asking if they were equipped to set up a decontamination zone for the Tyche and her crew, a few hours

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Possible radioactive for millions of years

later she got the response telling them to divert to crisis station near 88 Thisbe in the main belt and to send a message to the their surveyor about the radiation signature they'd sent him. Ueme was also given a message for Liam from Marisa. After saving the recording for Liam she sent an inquiry to the surveyor and rerouted the ship to 88 Thisbe.

The trip only took a few hours and upon arrival she was told to maneuver the ship into one of the stations decontamination bays and to await further instructions. As soon as Ueme pulled the Tyche within range robotic arms came to life and began moving the ship around and cleaning the exterior. After an arduous process an umbilicus stretched towards the ship's airlock and workers in heavy radiation suits came in to retrieve the crew. Their suits are large and clunky like the suits cosmonauts wore during the other 20th century, she thought as they took her and the others out of the ship and into the station. She told the medical staff they were suffering an overdose and that she had already treated them with a dose of the antidote. They began treating her for the insulin injection Lian had given her. She used the stations comms system to call their surveyor again to have the information he had forwarded to the medical team at the station. The experts he'd send the data they'd collected had been confused initially, it was a completely unfamiliar frequency, but luckily for them it appeared to be a non ionizing type of radiation.

The medical reviewed the information sent and treated the crew as best they could. They hadn't developed severe radiation sickness, their decision to move within the ore hold had paid off. Liam had received the worst of it but thankfully there had not been irreparable damage. Brenan and Nals had woken up after only ten hours, but Liam had taken another few hours for the morphine induced coma to wear off. Once he finally woke up Ueme sat down with him to tell him everything she knew and ask what had happened after he put her out.

"I'd just given Nals and Bren shots to shallow their breathing, we were running out of power too quickly, so I decided to cut the shielding to try and conserve power. I huddled you guys as close together as I could and wrapped you guys in the foil blanket. I figured it'd keep you warm and maybe slow down the radiation."

"How did you get the ship moving, we had no power?"

"About thirty minutes after I shut down the shield I started pushing morphine and just go to sleep, I'd pushed an entire syringe and was halfway through a second when the fans kicked on, got to the control panel as quick as I could and sure enough the solar cells were active and charging--"

"You'd taken an almost lethal dose, why didn't you take some Naloxone so you didn't die?"

"I was more concerned about getting the ship going so you guys could get help. I rushed up to the cabin and set a course for 52 Europa, then I went back to bring you guys out of the hold. The last thing I remember was getting into the hallway before blacking out."

"Well sometime after that I came to and sent out some messages to get instructions... Oh! That reminds me, Marisa sent you a message, it's saved in the Tyche's computer."

"Oh? Did you listen to it? How's she doing!" He took breath and collected himself. "That's not important right now, are you okay Ueme?"

"Yeah, I'm alright. And so are the others."

"Good, good, I'm glad we made it safe to... Where are we exactly?"

"The control at the Europa colony told me to divert to the crisis station near 88 Thisbe for decontamination and medical care.

We got here about half a day ago. You had the worst rad poisoning of the four of us."

"Probably because I was in the cabin before we got out of the rad cloud. What the word on the radiation we encountered?"

"It's a new frequency, non ionizing, so much less harmful than I could have been. I was thinking, if we can retrieve one of our drones and return a sample to the scientists on earth we might get to name it!"

"Those eggheads've probably already published the discovery and taken credit, but we might get paid if we can recover a sample."

"That would be good, we didn't get much from the field before all that happened."

"Yah, can you ask Brenan to talk to that surveyor and make sure we still have claim on that section? I don't know their companies rules about catastrophic accidents."

"I'll take care of it Li, you need to relax a bit. You've been nearly dead for over a day! Business second, health first."

"You don't get rich like that Ueme!" He gave her a cheeky smile. "So... When are you and Nals going out on that date you promised him when we were all dying?" She blushed and got up to leave. "Well alright! Can you have Nals come in when he's feeling up to it?"

"Sure thing Li, get some rest."

"Ueme...'

"You alright Li?"

"I'm sorry for almost killing you. You get some rest too."

Ueme left and and Liam leaned back in his hospital cot and stared at the steel ceiling of the isolation ward. He hadn't even noticed that he was laying in a bed without holding straps. This must be a centrifugal ring station, he thought, Nals is probably loving having artificial gravity. It was the most restful sleep Liam had had since leaving Marisa a little over a month ago. He called in one of the medical team and asked when he'd be able to leave isolation, and when he'd be allowed back in his ship. They told him he could leave as soon as he felt up to it, but the Tyche was going to take another day or two before it was safe to enter. Liam wandered around the station for a while before realizing he didn't know its proper name, upon inquiring

a station employee informed him he was on the (Emergency Orbital Crisis Station) E.O.C.S Guardian. He downloaded a map to his wristcom, and found his way back to the medical facilities to find Brenan.

The rest of his crew was in the mess hall trying to forget the two weeks of tube food they'd eaten. I wonder if they have a hydroponic garden to grow their own food, he thought, if we could expand the living dome we could have a small garden too. Nals and Ueme were leaning against one another and sharing a plate of meats and greens, they were chatting with Brenan and some of the Guardian's crew members. Nals noticed Liam first and gave a huge smile to his partner, he nudged Ueme who looked over and nodded at Brenan who turned around and immediately stood up and saluted his captain. Liam chuckled at his friends stern professionalism and told him to be way ease, then sat down and ate a small meal with them. After dinner he grabbed Brenan and discussed his concerns about the field they've bought, Brenan said Ueme had already talked to him and he'd sent a message earlier that day. Liam told Brenan he was planning on buying the crews shares to keep them safe.

"Now that they're, sort of, together I don't want to put them in danger like we were just in. But I need at least one crew member to help while I recruit some others. Would you be willing to stay with me for another three or four months before I let you go?" Brenan laughed uncontrollably, tears welling in his eyes.

"If you think either of them, or me for that matter, will let you buy us out of this business you're draft! You could pay me what the Tyche is worth and I wouldn't abandon you, and I'd bet a pretty penny the others would tell you the same!"

"Bren..."

"Don't give me any of that Liam. I signed on with the intent of riding this ship until she failed and we got torn apart in vacuum. It almost happened, and we survived it. Don't let me hear you bring this up again Captain."

Liam lowered his head and gave a quick nod of understanding. He'd still extend his offer to the others, but he knew Brenan was right. He got Ueme and Nals a little later and they laughed in his face. He had thought Nals would at least give it some thought but he declined even before Ueme could comment on the offer. Liam accepted that he wouldn't get rid of his crew and let the idea rest.

After Liam had gotten the all clear from the medical crew he entered the Tyche and retrieved the message Ueme had saved for him. He listened and wend to the Guardian's comms area and sent a return message to Marisa. He wanted to wait for a response, but realized it was the middle of the night on 52 Europa and asked the communication officer to rout any response to his wristcom. He went back to the Tyche and gtoo Ueme to help him assess the damages caused by their extended exposure to the radiation. Their computer's systems were unaffected, but some of the hardware had been cooked, Brenan managed to barter with the Guardian's technician and bought some of the older or outdated hardware they had onboard. They had finally gotten word back from the group of scientist on Earth who had researched the new radiation signature they'd found, and they were interested getting a sample. Vleksi Kova was a short balding man looking to be in his late forties who spoke with just a trace of a russian accent, he told them what he and his team had learned about the readings their surveyor had sent them and informed Liam's crew that they would indeed pay for any samples they could return to Earth. Liam recorded his response and sent it to the scientist informing him that they'd bring between one to three contaminated drones by the end of the month and asked for a location to deliver them to. A few hours later they had a landing location and had begun planning flight vectors and timetables to buy the recovery equipment they'd need, pick up their salvage and get to Earth at the right time to land where they needed to.

Once they'd gotten the all clear from the Guardian's staff Liam's crew launched the Tyche and set course for the merchant colony on Earth's moon to sell what little take they'd gotten. It was a quick trip, and after wiring the surveyor his cut Brenan had gotten the crew 16,000 credits. Nals managed to find a used towing crane off of a small salvage vessel and a team to attach it to the Tyche. After a two day layover on the moon they were on their way to retrieve their lost drones. It took just under three days to return to the small asteroid field and find their drones. Ueme was at the helm and maneuvered the ship around to scoop the drones and some mineral samples into a large holding net. They had to keep the drones and minerals fairly far from their ship to avoid and interference with the ships systems. The Center of Acute Radiation Research was located in Houston Texas and in about a weeks time they'd be landing the Tyche in the Gulf of Mexico and traveling there to deliver their dangerous cargo and collect their prize. The trip back to Earth would take much longer than the trip out as they had to carefully monitor the cargo in tow. As the week passed they talked about what they'd do with their earnings, as they did after every job, it was most of the usual, talks of updating the ship, putting the money away in sayings, and spending a great deal of it on drink filled the common room. At the low speeds they were flying, the ships computer was able to handle the navigation and only major course adjustments needed Liam or Ueme's intervention. Ueme and Nals had spent every minute they could together, and were even considering moving in with one another. Liam had decided that if the extra room became available he'd try to find and hire a medical expert as part of the crew, but he decided to wait until they decided what to do before mentioning it.

With only a few hours left they were closing in on Earth, the large blue planet took up the entirety of Liam's field of vision, the Gulf of Mexico was centered in his sight. Due to the slow speeds they were traveling they didn't have to drastically slow before re-entry and only had to use the in-atmosphere boosters to slow their descent.

The Gulf of Mexico had been deepened years ago to allow large warships to land outside the the small area of the Singsbee Deep, and close to the Houston launch center. Liam hit almost dead center of the Gulf, the Tyche plowed under the surface of the water and disappeared for several seconds before re-surfacing. Tugboats from CARR were waiting for their arrival and towed them and their cargo to shore where they were loaded on flatbeds and transported to the Research center.

Chapter x : New Beginnings

They arrived at The CARR complex about an hour before their ship and two before their radioactive cargo. the contaminated drones had melted together from the heat of entering Earth's atmosphere, but the chunks of asteroid were no worse for ware. The cargo was being transported in a specially designed cargo container the CARR scientists had created to block the new ration's specific frequency, and because the truck had arrived they assumes it was successful, a new EM field frequency had to be set to account for the shorter wavelength.

One of the staff had escorted Liam's crew to to the labs to be tested for any effects the Guardian's medical team might have overlooked. After they had checked out they finally met Dr. Vleksi Kova in person. He seemed surprised at first, having only heard the crews voice as they had no video recording equipment on the Tyche. Dr. Kova had not seen many modifieds in his life, and the ones he had seen he'd not had the chance to meet, so seeing a four man crew of all canide-humans caused him to jump a bit. After he had composed himself he introduced himself formally.

"Hello, my name is Doktor Vleksi Kova, I am one of the head researchers here at the Center of Acute Radiation Research. To which one of you did I speak on the laser comm?" His accent was more relaxed and slightly thicker in person.

"You spoke to both my Technical officer Ueme Cerik, and my Communications officer Brenan Tos. My name is Liam Et'unt and I the Captain of the Tyche. It is good to make your acquaintance Doctor Kova." Kova took notice of Liam's slavic accent.

"Liam is an odd name for someone from... Belarus by the sound of it?"

"My mother returned to Ireland after her father fell ill, I stayed in Mahilyow with my father to continue my education. You must have lived somewhere in the Czech yourself?"

"Yah, you have a good ear Mr. Et'unt."

"Liam's fine Doctor. Not to push pleasantries aside, but I would like to talk about our payment."

"It's not problem at all Mr. Et... Liam, let us sit down, we have much to talk about."

He led them to a small conference room a ways down the hall and sat down with a few other scientists from the Research Center. Everyone introduced themselves and they began discussing matter of payment for services rendered.

He led them to a small conference room a ways down the hall and sat down with a few other scientists from the Research Center. Everyone introduced themselves and they began discussing matter of payment for services rendered.

They had already named the new Radiation type based on its properties, but because they Tyche crew had discovered it they were to be accredited as its founders, and they were to receive one hundred thousand credits for their discovery. The Science team had agreed to upgrade the Tyche's EM shielding to block the new frequency and had offered to replace their ruined drones.

Liam was elated that each of them had an extra 25,000 credits for simply almost dying, and he got straight to work looking for a trained medical officer. With Ueme and Nals' permission he asked Brenan to begin renovating the crew quarters to add two extra bunks. He also sunk some of his money into partitioning off the cargo bay beneath the crew quarters and having a small produce garden and kitchen put in the otherwise largely unused space. After pricing everything out all the

modifications would only cost around 15,000 credits, so Liam went ahead and began headhunting.

They decided to stay on Earth for a few weeks to rest after their ordeal. Liam had taken a transport ship to 52 Europa to spend time with Marisa while his crew decompressed planetside. He again offered her a position on the Tyche, after three weeks of tempting offers she accepted when he told her how much they'd made on a botched mission. She gave her two weeks notice to The Limping Spirit and began packing what little she cared about.

Brenan had taken up the search for a medical officer in Liam's stead and had finally found a suitable applicant. Jesse Reeders was a young woman in her late thirties who served in the UN Medical Core. She'd served her full seven year term and left to work for some large companies as a medical technician. She had worked with modifieds before and said she'd have no problems working with them after reading their dossiers. Liam had been eager to meet his new crew member and had taken the first ship back to Earth with Marisa after her two weeks.

Upon arriving Ueme was pleasantly surprised to see Marisa had accepted and come back with Liam, they said their hellos and Liam went to interview Jesse, give her the ship tour, and see for himself how the renovations had gone. She was pleasant, courteous, and above all inquisitive, asking questions about everything Liam showed her. She took notes on everything she deemed important to her new job, and actually began examining her crewmates during the tour. In an hours time she was comfortable with the ships layout and more importantly the newly build medical bay. After showing Jesse around and having his vitals checked and recorded Liam took Marisa through the ship again to show her what had changed in the months since she'd first been aboard.

With their new crane and improved EM shielding they were able to take small salvage and transport contracts as well as mining. As per the norm Brenan and Nals were hard at work setting up contracts. They had decided to return to the field they were stranded in before due to only having mined a small portion of it. It took just under a week to fill their hold with precious minerals. They had been contracted to pick up a container on Titan and deliver it to Ceres in the main belt, luckily Jupiter's orbit had it moderately close to Ceres and they were able make the trip without going too far out of their way.

Jesse, in her boredom, had done full workups on the crew to get their statuses in their peak conditions. She'd never done a procedure on modifieds and wasn't sure if their physiology was still within normal human standards, Liam assured her he'd have hired a veterinarian if that's what he'd needed. Intrigued, she questioned Liam on the process. Most people received gene therapies during their life, strengthening themselves or repairing their eyesight, but the process of full body modification was a mystery to her.

[&]quot;Basically you get heavy gene therapy to tell your cells what you want them to look like, then you take a dunk in stem cells until your body changes completely. All the old cells die and your new body basically grows inside the old one."

[&]quot;So did your entire crew go through it at once?"

[&]quot;Nah, I got changed after college when I decided I wanted to live out in the belt, there are some advantages to it. Nals got it a year or two after I did, and we met Bren and Ueme in the belt at one of the larger trading colonies."

[&]quot;Doesn't it hurt to have such massive cell death and regrowth?

[&]quot;Probably, I was unconscious for three weeks after my change, the doctor told me there was a slight rejection, some of my old

cells were still swimming around inside and the new body didn't like that. He kept me in a coma until I stabilized."

"Wow, I'll have to ask the others about their experience. Besides the rejection did you develop any other health problems?"

"No, it fixed a few though, I had a few rounds of normal gene therapy first to get all the little problems fixed so I'd be fit enough to get the full thing."

"Well thanks for the story captain, it was very enlightening."

She finished giving Liam his radiation treatment, which was why he had gone down to medical in the first place, and after he left she began filling out her journal again, updating it with new things she'd learned.

Liam spent his off duty time with Marisa or tending to the garden he'd had installed. Growing plants in free fall was challenging, some one had thought to put starter plants in long cylinders and grow them hydroponically, and it was the method used on all ships that could afford space for the set up. Liam had chosen several hardy fruits and vegetables to grow first, lettuce, pineapple, and carrots to name a few. All genetically tweaked to grow as best they could in low to no gravity.

They had filled their hold in just over twelve days. They set course for Titan and began their slow journey home. They fired the mass driver and began accelerating to Busard speeds. A few days later Liam spun the ship 180 with the angle thrusters and began firing the mass driver again to slow them as they approached Jupiter's largest moon. The customs officer was waiting and after the paperwork was signed and the crate hooked up they were on their way to Ceres to make their delivery.

They made a good sum of credits from the delivery and their cargo, Liam treated the entire crew to an expensive dinner to celebrate their first mission together. This was the third celebration of the sort he'd thrown. He'd been part of one other, he'd been a crewmember on a small ship for a few months before buying the Tyche. He served under a jovial antique of a man on an equally old barge modified and fitted with mining lasers. It was this captain who'd started the tradition, and Liam hoped to pass the tradition on when one of his own crew left to captain their own ship.

After everyone had had their fill Liam wandered through the marketplace near the restaurant. After browsing some shops he walked through the merchant district and drunkenly browsed the available contracts at one of the kiosks. One of the boards was updating with new contracts, and one jumped at Liam immediately. It was a simple rescue job, but the pay was tremendous for a roughly four day trip there and back. He went to the kiosk clerk and put down a deposit a reserve the job.

Ueme returned to the Tyche after dinner and began calibrating the ship's computer targeting systems. Nals was a lightweight and passed out after only a few drinks, she on the other hand could drink most people under the table, so after having Brenan help bring him back, she decided to do something productive with her time.

Brenan called down to Ueme from the laser controls saying he had all green on his end when his wristcom told him 0he had a secure message waiting for him at a comm terminal. He told Ueme he had other business to attend to and left through the drydock.

Marisa watched Brenan hurry out of the airlock and sprint to the building exit before walking into the bridge to talk with Ueme.

"Hey Ueme, what was that about? Bren just left at a full run."

"I dunno, he was helping me with computers, got a message, and told me he had somewhere to be."

"That's all he said? Weird, I haven't exactly known you guys long but that seems unlike him."

"I mean we all do our own things when we're stationed, but Bren does normally stay near the Tyche."

Liam stopped by the Spirit on his way back to the Tyche to get food and start sobering up. He'd become a regular there while Marisa was under their employ, and was greeted by the owner when he went in.