Part I: Glitches in the System

There were approximately four thousand souls aboard the Drake, one of the first pioneer vessels scheduled to travel beyond Jupiter. Built by a conglomeration of subcontractors, major contractors, small businesses, whiz kids in their parents' garage, and shady government labs, the Drake was one of the flagships of space exploration. Each of the pioneer ships was named after a famous explorer; Columbus had engine trouble shortly after leaving orbit. Amundsen was bound for Pluto, though everyone in the Pioneer Program had their doubts it would make it that far without incident.

Drake was following in the wake of what some were calling the forerunners. Two of those, the Russian Pioneer Tereshkova and its American counterpart the Sally Ride, had set up a stable mining platform in the asteroid belt, which also served as a navigation station for the following ships that had launched years after them. The first generation pioneers had had their problems, the same ones that had faced space explorers since the Space Race sent monkeys and dogs into space.

But, the second generation pioneers had a whole new host of problems to handle deep space exploration. After Curiosity and other deep space robots, most of Earth's population was satisfied. They said: "Yep. That's space." And with that, they went back to their Earth-borne, terrestrial problems. War, inefficient division of resources, government ineptitude, political wrangling, Hollywood performers, and so on.

But some of the best, brightest -- and richest -- were inspired by what they saw beamed back across the vastness of space. In those high-resolution images of Martian geography, and later the deep space probes close up pictures of the gas giants and their moons (well, close up when compared to what Earthlings were used to seeing,) some people saw more than just the final frontier. They saw opportunity, freedom, excitement, and beauty. The richest of these started informally writing their ideas, something like the robotic futurists, they started to become the space faring futurists.

Instead of some technological singularity, though, they focused on more hard engineering. What stresses can we put on a hull and keep it space worthy? What space infrastructure do we need to build to make deep space exploration possible? That question had led to the Sally Ride and Tereshkova's mission. Navigating the asteroid belt promised to be a dangerous thing to do, and by setting up a waystation, some of the early pioneer group members thought to use their mining station as a lighthouse.

The idea had come from an old aeronautics method of monitoring position, the use of low-frequency radio range. By beaming out different messages in straight lines on a given frequency, pilots of early airplanes were able to hear the distinct Morse code tones that meant they were on target. Of course, given the more advanced methods now available, the pioneer group was well ahead of the curve, but by placing the starting points for the frequencies significantly closer to the asteroid belt, and with small shuttle missions placing beacons on some of the larger asteroid family groups, such as Vesta, Flora, and others, the Pioneer Program had started what they jokingly called their Northwest Passage.

That had been nearly thirty years ago. The Tereshkova and the Sally Ride had been returned to port for repairs and recommissioned, the Tereshkova after receiving impact damage from a stray meteorite, the

Sally Ride after user error damaged some of the internal components, but they remained the flagships for the Pioneer Program.

And now, after laying all of the ground work, finally establishing a semi-self sufficient space base on the moon and the surrounding areas, the Drake was going to be the first of the large vessels to brave the Northwest Passage. They had received the rousing speech from the head of the pioneer group, Hector Pallas. He had given an emotional, fifteen-minute speech, which most of the crew felt went about fifteen minutes too long.

But now, the Drake was finishing its resupply on metals and other useful trinkets that the mining platforms had collected, and was plugging in the most recent data for the asteroids' location. Once they were through, the sailing would be much smoother.

"You will be among the great crews of myths and legend. The pilgrims on the Mayflower; the Argonauts. Today, you begin the most dangerous leg of your journey, and with it, you carry the eternal torch of humanity's spirit and resolve into the New Space Age," Pallas had concluded. The New Space Age is what the Pioneer Program -- a multi-cultural, mutli-corporate, multi-generational program -- called the current phase of history. The Space Race of the Cold War was something like a night of drunken foolery to them, the waste of potential and resources on petty politicking. The decline of NASA was their Dark Age.

But now? With money, power, and influence in their pockets, the Pioneer Program was finally ready to enter the next age of history. In a thousand years, whole textbook chapters would be written about the The New Space Age. Something like a Gilded Age, without the irony, Pallas, hoped, as he waited for the transmission to the Drake to end so he could drop his calculated and warm politicians' smile. Once the red light turned green, he slouched back in his chair and heaved a sigh of relief.

Then, he turned to his secretary and asked to see the report one more time. Stamped across the top, in red, clear letters, was the single word: CONFIDENTIAL. The first page was a simple, type-written title page:

"Crisis Management Plan: Disaster During the Drake's Crossing of Northwest Passage," authored by Dr. Sylvia Lewiston, Vice President, Pioneer Program, Media Relations.

"Send in Dr. Lewiston. I'm ready to hear what she has to say."

Sylvia Lewiston was a woman who was never quite at home in the Pioneer Program. She didn’t have the money; she didn’t have the political clout. But, worst of all she thought, each time the people looked at her with their judging eyes, she didn’t have a degree in a real science. Oh, sure, they’d never say it to her face, she knew. The others were at least polite, but she could see it in the way they stopped talking about the more technical aspects of the pioneer vessels and dumbed down their conversation.

After forty years as a doctor of psychology with a focus on media relations, which even she sometimes thought was one of the most egregious misuses of the word, she had gained an intense appreciation for how people thought. And one thing most people thought was that head shrinking was so last century if it didn't include a heavy dose of chemistry or biology along with the more traditional psychological viewpoints.

She didn't deny that chemicals and genes had an effect on how people behaved. There was just more to it than that, and she had seen the truth of that just in the roll out of the Pioneer Program. The people who came in and joined, the engineers and mathematicians, were dreamers one and all. A simple rush of feel-good juice and vibes wasn't enough to explain their commitment to getting to space. It was something else and to manipulate those people into continuing their support, despite the drawbacks and failures was a real skill. A delicate touch, and there were papers describing the right way to do it. It was all very scientific, even if Hector didn't agree.

"Alright, I read your report," he said between puffs on a vapor cigarette. It was one of his many nervous habits. Sometimes he crushed mints in his teeth, three to four at a time. Sometimes he tapped a pencil against the desk. He just needed to be moving; the only time she saw him stand still was for photos. If the situation wasn't about him, it just didn't deserve his full attention.

Narcissist was the nicest word for him, she thought. "Yes, well, do you have any questions?"

"What are the odds of a crisis?"

"That's hard to say," she replied. "Initially, I would think the odds are fairly low. We have a well-trained crew-"

"The best crew," Pallas said.

"No, sir. One of the top 30 percentile crews, but not the best."

"I just got on national television and said they were the best."

"Well, it is a dangerous mission sir, we didn't want to risk our best," she said. "After all, there are still many more important missions scheduled."

"How much did changing the crew increase the risk?"

"Believe it or not, the major change is in how they will deal with unexpected circumstances. Routine maintenance or expected crises, like an asteroid breaching part of the hull, will have only marginal differences among professional crews, until you start getting radically different levels of preparedness," Lewiston said. "The difference between the best and the thirtieth percentile best really only show up in very limited ways."

“So, only in the most stressful situations that we haven’t prepared them for? Or, perhaps, I should say, the most dangerous,” Hector said. The vapor began to get thicker. His free hand was drumming on the desk.

Lewiston was one of the oldest members of the Pioneer Program, nearing seventy. One of the saddest moments of her life, after burying her husband and daughter, was when she received a fail on her physical. She would never be able to go to space on any of the pioneer vessels. The technology just wasn’t there to adequately cover her myriad of medical conditions. Well, there might have been, but not to a high enough confidence level that the board would allow it. Instead, she had been paired with several of the risk analysts and asked to find ways to ensure that the group could succeed.

That had led her to taking up the mantle of media relations. By managing the world’s expectations of the groups, new donors and money kept rolling in. She was on a first name basis with the fundraising director. That was the fun part of her work; the unfun part was what she was trying to explain to Hector now.

“Yes. But those situations are equally dangerous across the spectrum,” she said. “It’s highly unlikely that the success or failure in a true emergency would hinge too greatly on the miniscule skill differences and cohesion between crews at the Drake’s current level and those manned by the best we have.”

“Let’s focus just on the passage through the asteroids.”

“Probes and such have passed through it, along with smaller vessels,” Lewiston said. “However, the Drake is going to be one of the first ships of its size to attempt passage. It should be relatively easy, though I must confess I agree with some of the others that going around may have been safer.”

“But not as dramatic, and it wouldn’t let us prove the effectiveness of our navigation techniques.”

Dramatic gestures fueled Pallas’s love of space. The engraved quote on his desk spoke to this theatrical side: “One small step for a man, one giant leap for mankind.” During the launch of the forerunner ships, he had tried to get as many space alumni from the various world governments to attend. It was a who’s who of every little child’s dream of space camp. He had their pictures stuffed around his office, like they were old, personal friends.

“The risk isn’t that great,” Lewiston said. “But, given the logistics of what we’re dealing with, eliminating the risk is always better than minimizing it.”

He puffed again, blowing the vapor out in little vapor rings. “Safe doesn’t fund the next mission. Safe doesn’t ensure we can keep the ships we have up up there. So, if something goes wrong with the crossing, this is the plan you want us to follow?”

“I have contingencies for user error, equipment malfunction, unexpected occurrence and sabotage.”

“Sabotage? Is that really a concern?” He looked worried. Being in charge meant you missed the little details. Potential saboteurs were not little details.

“Everyone aboard has had a complete background check, at least as thorough as a security clearance. Same with everyone on the Pioneer Program’s staff and engineering crew,” Lewiston said. “But, sometimes you miss something. Or they become dissatisfied on the job. Or there’s a lover’s quarrel.”

Then she shrugged. “I’ve even got a paper describing what to do if we lose a ship to hostile alien action. I believe in being prepared.”

Pallas let the vapor cigarette rest in the decorative ashtray on his desk, and flipped through a few more pages. “That reminds me. Send for Dr. Setin to report in on your way out. I want to ask him about the outbound signals.”

Lewiston’s nose twitched ever so slightly. That, she wanted to say, is what secretaries are for. She waited for him to ask a relevant question, one that deserved her response. Seeing none was coming, she asked if that was all.

“For now,” he said. “Honestly, though, I hope I don’t have to see you any time soon. Do you have the media plan for if the mission is a success?”

“We thought that we had more time to draft that one; I can have it for you tomorrow.”

“Tomorrow morning. First thing,” Pallas said. “And, in the future, finish the optimistic report first. It helps set the right tone for the rest of the program.”

“Yes, sir,” Lewiston said as she stood and walked back to the reception area. The secretary, who like all secretaries Hector hired was twenty-something woman, attractive, and wearing a tight, short skirt as if it were a part of the Pioneer Program’s uniform for administrative assistants, smiled at her.

“He asked for Dr. Setin,” Lewiston said. The secretary smiled and picked up the phone, to dutifully call the renowned Dr. Setin.

“They may not respect my field,” Lewiston thought to herself as she got on the elevator, “But, at least they don’t think that I’m crazy.”

Lieutenant Elizabeth Rose Chardon was on the Drake’s bridge. She was, whenever possible, on the Drake’s bridge. She had left home and her husband behind on this mission, so, God damnit, she was going to be on the bridge whenever the captain would let her. John hadn’t liked the idea of her going to space. They were still young, he insisted. Young enough to try for a baby. “There are treatments, after all,” he said.

But, that would be at least a year of pregnancy and taking care of an infant. You couldn’t go to space like

that. She had tried to appease John by bringing home a large, friendly golden retriever. He complained that she had forgotten he was allergic, so she gave the dog to her sister. “It was the thought that counts, Lizzie,” her sister said. But she knew that wasn’t right, since all this showed is that she didn’t bother to think “Is my husband deathly allergic to dogs?”

The next compromise was to freeze some eggs for when she came back. John didn’t like this idea, but it didn’t make him sneeze. So, she suffered through the procedure to get some peace at home. The doctors at the Pioneer Program were very good, and they even waived any storage fees. After all, she was one of them, wasn’t she? One of the four thousand some heroes that would be leading the way into deep space, which is why John had disliked the idea.

They both knew that it could be years before she came back. In their unspoken, tender moments, they knew that she may never be able to come back. John had tried to vocalize this as a way of keeping her there, but Elizabeth was brave. Facing the mysteries of space in person -- a challenge to her bravery -- had proven to be more important to her than the challenge to her love for John. Once she had made it clear she was going through with the mission, and he could accept it or leave her, he chose to leave her.

She had told the doctors to go ahead and stop storing the eggs. Someone else could use that shelf space, after all. Now, with the bridge crew as her closest friends, Lieutenant Chardon looked at the Earth, wondering whether she had made the right choice. “Of course it was the right choice,” her sister said. “If he wasn’t going to stand by you on this, what kind of father was he going to be?”

She thought that was unfair; John had stood by her through her career, her schooling. He had loved her; given her the space she needed. He had drawn the line at the space she just wanted, and that seemed fair to Elizabeth. Cruel, but fair.

“Lieutenant, clear the shuttle for take-off,” the captain said from his station. Chardon was their flight coordinator and operator, along with managing some of the ship’s communications. Lieutenant Bill Helmsley, the navigation officer, had told her that she was the best communications officer he’d ever served with.

“You’ve got a sexy voice, so people listen to you.”

“What about the women,” she had asked him.

“It’s just that good sounding.”

She had been uncomfortable first with his flirting, but after a few days, she had stopped the automatic thought of “I’m a married woman,” from jumping into her head. Indeed, she was not. So, she would tease him right back. But only when they were alone; never on the bridge. Or anywhere that the security cameras might see.

“This is Lieutenant Chardon on the bridge, to Shuttle One. Confirm pre-flight check.”

“Roger bridge; this is Shuttle One. Pre-flight check, complete. Engage secondary lock.”

“Secondary lock, engaged,” Elizabeth said, flicking a switch. To help reduce fuel costs, the Pioneer Program had come up with a new way to “launch” shuttles. The launch bay was, essentially, a giant airlock. Once a shuttle was ready for launch, it would be removed from its restraints, boarded, and then sealed. Then, the airlock would close behind it. With a flick of the next button, Elizabeth pumped the oxygen from the room back into the Drake, while the shuttle turned on its own internal supply. The first, initial Pioneer designs, had vented too much oxygen into space, in what later engineers saw to be an obvious design oversight. Now though, it recaptured something like 95 percent of the oxygen. Much better, the engineers said.

Once the room was prepared, the passage to space opened, and a motorized walkway shot the shuttle into space, like a people mover at the airport. The acceleration would throw the pilot and passengers back in their seats like the sudden drop on a roller coaster, but the speed also ensured that the shuttle needed to only expend fuel to correct course and maneuver. The cruising speed in space could remain fairly constant, with only a little burn to increase speed for longer journeys, or a counter-thrust to slow or reverse the shuttle.

“Shuttle One is clear,” Chardon said.

“Good job lieutenant,” The captain said. The first officer whispered something in his ear, and then the captain tapped her on her shoulder. “Lieutenant, one more thing. I’m told you’re fluent in Russian?”

“Yes sir,” she said. “Along with Spanish, Farci and French -- though Farci is my weakest.”

“Excellent. You’ll be joining Sergeant Polivanov on Shuttle Two to finalize the transfer of goods from the Tereshkova,” the captain said.

“I’m not cleared for shuttle duty, sir.”

“You won’t need to pilot it. Just get down there, on the double.”

“Yes sir,” She said, relinquishing her station to one of her new best bridge friends. The first officer, a man named Gregor, walked with her. She was hardly petite, standing at nearly five foot nine, but he towered over her. She guessed that he probably just barely came in at the maximum height allowance for the ship. He certainly was uncomfortable in the chairs, and she imagined his feet dangled off their regulation sized beds ever so slightly.

“There was a slight oversight in the crew manifest,” Gregor said. He seemed German, to her. Blonde, blue-eyed. Efficient, to the point. She gathered this was meant as a way of explanation and apology for taking her away from her normal duties.

She decided to be brave: “How so?”

“It turns out that Sergeant Ivan Polivanov cannot, in all actuality, speak Russian,” Gregor said, opening the shuttle bay for her. This was the first sign to Elizabeth that something was wrong aboard the Drake.

Dr. Lawrence Setin was one of the young whiz kids of the Pioneer Program. At thirty-three, he was an expert and much sought after researcher in interstellar communications and satellite design. He had been in charge of creating the various relays that would be used to help navigate the asteroid belt, even though he, along with several others on his team, felt that there were better ways to cross to Mars.

That was one of Setin’s key tenets to problem solving: Innovative solutions were great, but avoidance was better. He had learned that during his brief stint with the Department of Defense. He had been placed on a team designing an automated turret that would shoot down incoming missiles or neutralize other threats. He had assumed that they were the cornerstone of the defense of whatever piece of equipment their technology would be mounted on, but a staff sergeant (or some other NCO, he had never bothered to learn their shoulder symbols) had scoffed at that.

“If we’re relying on you, then we’ve already fucked up,” the man had said between chin ups. Setin was not considered a high priority, then, and had been forced to interview the man during PT. That’s when he’d learned about the concept of various layers towards survivability, and he implemented those ideas into his approach to problem solving. The first layer, was encounter avoidance. A fancy series of relays, small automated cannons and thick armor, designed to repel meteorites and break up asteroids, was an excellent addition to the Drake’s survivability at the point of encountering the asteroids.

But just going around the damn death trap was even better. That’s why people had a danger sense before fight or flight kicked in. You know, you wouldn’t have to do either if you didn’t walk into the lion’s den, Setin had tried to explain to Pallas. But Pallas had waved him off with a puff of his cigarette.

“Is your tech going to fail my astronauts?”

“It is highly unlikely.”

“Make sure it is impossible,” Pallas had said, then dismissed him. Pallas, though rich, was clearly not a scientist. At least, not an engineer. Even the most lean processes had an error rate. It may be infinitesimally small, but it was there. Setin had sent report after report explaining that this miniscule percentage chance still existed, but there was a perfectly valid way to get the results that they wanted.

“I’m not going around the asteroid field. If we do that, think of all the money and time we’ve wasted charting a course for the big vessels,” Pallas said.

Setin had tried to send a report about sunk costs, but his assistant advised against it. It turned out, Pallas

wasn't much of a businessman either. What, exactly, Pallas did was beyond Setin. He had no degrees on his walls and nothing published in any journal Setin could find. When he posed it over lunch to his colleagues, one of the materials scientists told him exactly what Pallas had: "Loads and loads of cold, hard cash. Oodles, of it, man."

The cheery assistant let Dr. Setin in to Pallas' office with an air of professionalism that clashed with Setin's slipshod appearance. Engineers could be lax in their dress code because who knew if they'd need to climb on something, or slide under something, or reach around something, to screw something or loosen something. The engineers took full advantage of it, even the ones senior enough that they'd never have to do the hands on work if they didn't want to (though they always made a point of doing something like that once a day, just so no one started asking questions.)

"Sit down, come in," Pallas said. As Setin made himself comfortable, Pallas flipped idly through the pages of a report. Setin assumed it was his most recent one, but it could have been anything. It might not even have been work related at all. He pretended that Pallas was looking at last night's football statistics.

"I don't have a lot of time, what can I do for you?" Setin had always been direct, and he'd learned that being a hot shot meant you could take some liberties with the boss.

"I'm sure your time is immensely valuable, Dr. Setin. Which brings me to my next point," Pallas said, sliding Setin's most recent report across the desk. It was a single page, on Pioneer Program letterhead, that read simply: "Still no contact."

"Can you explain that?"

"Well, it means we've still had no contact."

"We haven't ever had any contact," Pallas said. "Some are questioning if we ever will have contact."

"I could try sending out a different message," Setin said. "I've considered impressionistic messages encoded in mathematical concepts. So, to show that we're friendly, maybe complementary angles shaded in pleasing blues and greens, which also will help them realize that we're the big blue and green dot in the sky."

"You've been trying for years. We've run the gamut of messages. Nothing is out there."

"That's one conclusion, and an overly simplified one at that," Setin said. "Whatever is out there could be choosing not to respond, be unable to receive our signal, not understand our signal, be too far to have yet received the signal, be unable to respond to our signal, or have responded in a manner we're unable to receive."

"At least that last one is unlikely," Pallas said. "After all, if I received a message, I'd damn well respond the same way it was sent."

“You call me back when I send you an email.”

“That’s because I’d rather talk than email,” Pallas said. Then, his face flushed with anger. “Yeah, yeah, you’ve made your point.”

“We just need to broaden our listening tools,” Setin said. “Let me take some time to design some new reception dishes and borrow some software guys to come up with new ways to listen to whatever is coming back.”

“Whatever is coming back so far has just been noise. Look, we’ve got to accept that there’s nothing out there to receive. Mankind has been reaching out there with messages for generations, and it looks like we’re it,” Pallas said. “Look, Lawrence, I like you. Keeping these signals going out there isn’t all that expensive, but I need some sort of results. Something I can show the investors and donors so they don’t kill this part of the program.”

“That’s what the report is for.”

“A weekly report where all you do is update the date stamp doesn’t cut it. Make it look substantial.”

“Like what?”

“I don’t know, but get me something I can present to them by the end of today without looking like an idiot. And wipe that smirk off your face, I know what you’re thinking.”

Gregor Loman, first officer aboard the Drake, was overworked. The captain had acknowledged it with a “Well, what can you do about it?” shrug during their early morning meetings. It wasn’t that he was unsympathetic. He cared, there was just nothing to be done. Despite the four thousand crew members aboard the Drake, there were just slightly too many shifts to really let the senior staff have a lot of down time.

Gregor often felt like a gopher more than a first officer. He was a naturally charismatic man, more so than the captain, so being about the ship and doing meet and greets suited him just fine. The long hours though were starting to get to the other officers. Especially the ones with actual stressful jobs, navigation and engineering crews. If Gregor messed up, people were unhappy. If they messed up, people died.

“We could have the computer take off a lot of the heavy, menial work from the crew,” Gregor had suggested to the captain during their meeting. The captain had harrumphed at the idea.

“Can’t count on a computer in a crisis, I want these people to know their systems inside and out.”

“That’s what the months of training were for,” Gregor said. The captain had a gruff competence about him; it reminded the first officer of a mountain man. The sort of man who didn’t care who you were, so long as you could gut a deer. Only, instead of dressing game, the captain wanted people who could troubleshoot software glitches on the fly and crawl into duct shafts to manually fix hardware problems.

“In an emergency, we may not be able to rely on the computer’s existing contingencies and coding,” the captain said. “The surest way to be prepared for that is to get these people intimately familiar with their stations. No matter what the psychologists and training and doctrine people tell you, it is different outside the training field.”

That was true, Gregor reflected. During the training regimen, they had had a number of extreme situations thrown at them: errors in their systems that cost them their artificial gravity; an outbreak of a dangerous flu that required effective quarantine measures; a nonspecified religious extremist having infiltrated the crew and redirecting the Drake to crash into one of America’s biggest cities; and one situation everyone knew was from Dr. Setin, hostile alien species beaming aboard the Drake, a technology that didn’t even exist yet for humans was apparently something Setin wanted the crew prepared for.

All of these extreme situations during training hadn’t prepared them for some of the little hiccups they’d had since launch. Most of the crew was American by birth, as was most of the Pioneer Program, so within the first few days an app that converted Metric to English units was installed at nearly every work station. While the more technically proficient members of the crew, the engineers, the scientists and such, had been comfortable with the metric system, the average Joe still thought in feet and inches.

How the whiz kids at the Pioneer Program missed that was beyond Gregor. They had also admitted one member of the biology and farm team who, it turned out, had extreme allergies to certain kinds of vegetables. While the base strain of the crops that the Drake was using would not have triggered these, the genetic modifications the lab had done to them prior to sending them up had reduced the man to a quivering pile of hives after his first meal. Gregor and the captain had managed to keep that under wraps from the rest of the crew, and they were still not sure what to do with the guy.

The two most troubling problems though came to the shuttles. There were four shuttles, and they had a collection of spare parts for them in case there was a need for repairs. The first problem was that throughout the entire ship, no one had thought to store a wrench of the appropriate size for the largest of the bolts. One of the engineers had taken some of the redundant tools, melted them down, and recast them into a wrench suitable for the task. The math said that the improvised wrench should be able to handle routine use, and the initial testing showed it would. But, Gregor wouldn’t feel well until the Pioneer Program sent them something ISO-approved.

The second problem was much, much bigger with the shuttles, and it was something that they hadn’t even noticed until the first harrowing return trip. The method of launching a shuttle was relatively straight forward; it was like a conveyor belt into space. The method of returning a shuttle, though, was theoretically simple. All you had to do was slow the shuttle down significantly as you made your approach, touch down on the conveyor belt, which would start pushing against the shuttle’s approach,

effectively creating a kind of treadmill until it overcame the shuttle's inertia and brought it to a stop.

Instead, what seemed to happen, is that the conveyor belts either pushed too fast, meaning that the shuttle was shot back into space, or they went to slow, which is why the conveyor belt for Shuttle Three was a scorched mess, as the pilot had panicked and pulsed some fuel to manually break before smashing into the air lock. She had a minor concussion from being thrown about during the botched landing and was resting next to the sick farmer in the med bay. Repairs were underway, but Gregor was pretty sure that Shuttle Three was not going to launch again anytime soon.

This was how the docking was supposed to progress, in theory. Somewhere, though, the computer's calibrations were off. Teams were working round the clock to figure out where the math was off, and trying to fix it with simulated shuttle dockings. Until then, everything was done by hand. Well, had been done by hand, until Sergeant Ivan Polivanov had come up with a brilliant work around. He had lined up his approach, then while still in space, used his engine pulses to come to a stop within the path of the Drake, getting scooped up into the bay. Of course, it wasn't a perfect stop, and it still required finicky hand piloting to keep from a disaster happening, but it was a lot cleaner than the other solutions. What bothered Gregor is that the solution was so simple, but no one else had thought of it.

That was Gregor's biggest problem working with the science teams. Whenever they came across a solution, they always pretended like it was so simple. "It was practically staring us in the face the whole time," they'd say. He wished they'd just acknowledge: "We were stumped, but here you go. This should hold till we get a real solution."

The incident with the shuttle had been the catalyst for the captain pulling back on the crew's reliance on the Drake's computer system. The computer nerds had named it Puff, after the magic dragon. The captain had jokingly told them that he didn't truck with any hippies on his crew. But, that had not really buoyed the captain's spirit.

"I don't want my ship piloted by a shoddy system named after an imaginary pet," the captain said. "That does not raise my confidence level."

"You're reading too much into things. These are minor glitches in the system."

"Minor glitches don't almost kill my shuttle pilot, and potentially everyone in the docking bay."

"I still think you should write a commendation letter for Sergeant Winston's quick thinking with that fuel pulse."

The captain tapped a finger on the arm of his chair as he thought about that, then nodded. "Send me a draft for approval before dinner."

As the meeting had been wrapping to a close, Gregor tried one more time: "We need to let the computer take more of the workload off the crew. The ship was staffed with that in mind, that's why the crew is

getting run down so fast."

"I can beat the ship at chess," the captain said. "This doesn't instill my confidence in Puff."

"The ship calibrates itself to provide a challenge," Gregor said, trying to explain that it was a novel sort of AI. The system was a dynamic learner that tried to match itself to its opponent. Puff's handlers had said that it was like a parent trying to teach the game to a child. But, the captain just made an exasperated sigh.

"There are obvious holes in the system, Mr. Loman," the captain said. "Until those are patched, I want us relying on it as little as possible. Dismissed."

The meeting lasted a few seconds longer than usual, because the automatic sensor on the captain's door didn't immediately recognize the RFID chip in Loman's insignia. He also held his wrist out, where each crew member had received a microchip for identification. After no reaction, Gregor reached out to manually open the door, practically hearing the satisfied smirk appear on the captain's face.

"Also, could you see why Puff doesn't think you're a real boy?"

"When I say he's weird, I don't mean creepy, Lisa," said Charis Hillman. Hillman was one of the many doctoral candidates attached to the Pioneer Program, one of the few active space programs that accepted them en masse. Her speciality had been in over-the-horizon satellite communications, which Dr. Setin had seen as a springboard into the problems that might face long distance interstellar communications, or at least, a good base for whatever crazy problems that he might face.

Plus, doctoral students worked cheap, and Setin was not exactly getting a lot of budget these days.

"I think the word you're looking for is eccentric."

"No," Charis said. She decided to let their difference over Setin pass. "Do we know why Columbus's engine malfunctioned? It's to the same spec as Amundsen and Drake."

"Harvey's people just missed something on the pre-flight checklist, I guess," Lisa said. She was short, which she considered a detriment to working in a high-tech lab. After her first day, Dr. Setin had got a step-stool so that she could reach some of the higher hanging equipment.

"That's what I don't get though. The on-board diagnostics didn't pick up anything either. Dr. Setin said that he thinks we may have overlooked some things."

"Don't be so doom and gloom Charis. Every major technology has some bumps in the road at the start."

This was true, Hillman thought as she helped to prepare Setin's newest ambiguous messages to whoever

was out there. She just hoped that this was more like Y2K and less like the Hindenburg. There had been accidents on the ground, but those were easily traced to user error or to obvious mechanical faults that could be fixed. This far from the machinery and crew, it was next to impossible to make an accurate diagnosis. She had talked about it with Harvey over drinks one night, and he said that it was like operating on a patient using teleoperation: It could be done, but there was a disembodied feel to the trouble shooting.

“I think we should have insisted on a virtual presence aboard the vessels,” Charis said after letting the silence stew for a minute or two of quiet work.

“We already have access to all of the cameras, and as long as our communications hold, we should be able to get live feed from the crew’s handheld and head- or shoulder-mounted cameras.”

“That’s true,” Charis said, checking her math. She liked idle talk to fill in those spaces in her brain where fractions and carry-overs sometimes tried to hide while you did math. This focused the math part of her brain on the math problem, letting the parts of her brain that were used for other things to keep on trucking.

It was Lisa’s turn to break the silence. “Everything’s going to be fine up there. After all, they’ve got some of the best minds down here on the ground looking out for them.”

“What if we lose communication though?”

“Then we still wouldn’t have access to the virtual presence anyway,” Lisa said. It was an obvious point, but Charis blamed it on her logic brain being overwhelmed by numbers. Double checking her work had become a zen-like moment for her, a path to completely emptying her mind while still having it full and useful. A contradiction that would help bring her to an easy truce with reality.

She always plugged the numbers into the calculator app first, then went back and checked it manually. Several times she had found that her fat fingers had hit a six when she needed a five or a plus when she wanted a minus, but the zen-state of her focus kept her from chiding herself over these errors. Mistakes were errors that got uncorrected through a rigorous process; errors were human, expected and fixable. Mistakes, sometimes, were not.

“How are my two favorite doctoral students doing?”

Setin’s voice always seemed to come from nowhere. This time, he came in clearly agitated. But, like most of the professional scientists, he was carrying himself in a way that was supposed to project to his science underlings that “everything is fine. Just keep going about making the world a better place.”

“Any news on the Columbus?”

“That’s not our lane,” Setin said. “But, the engine problem seems to have just been some bad fuel.”

“Bad fuel?” Charis asked. “How did that happen?”

“Not sure, but Dr. Sojaei is having a hell of a fun time reaming out the supplier,” Setin said. He then gave a wink to Charis. “I hear Harvey Amin is going to get to sit in on the spectacle.”

Charis felt her face flush red. She had thought they had been being discrete, but Dr. Setin had called them into his office several weeks ago and gently reminded them about the Pioneer Program’s inter-office dating policy. Then, he had said with what he probably considered a sly wink, but which came off more like the time Charis’s black sheep of an uncle had tried to be the cool uncle, “Of course, I could just be seeing things that aren’t there. That’s what people’ve been saying about me for years, so, let’s not change the score on account of me. Just make sure no one else sees what I haven’t seen.”

Despite being more discreet, Lisa knew. She was Charis’s roommate and had come home early from a trip to see her parents to find the lovers together on the couch. How Dr. Setin knew was beyond either of them though. Somehow, he just knew things. Lisa thought he had spy cameras hidden around the office, but Charis believed he picked up on social cues faster than most people gave to the nerd who associated a pilgrimage to Roswell and Area 52 to be similar to the Haj.

“Now that we’ve gotten the gossip portion of day out of the way, why don’t my two favorite doctoral candidates show me the infrastructure for the asteroid navigation system,” Dr. Setin said. “Oh, but before we run the simulation, layer in this program. This should simulate the hardiness of our systems in case an external enemy tries to jam our communications.”

Lisa just rolled her eyes as she took the flashdrive from Setin. First she plugged it into what the software techs had called a “cleaner.” It scanned the drive, a necessary precaution to prevent uploading things that should not be uploaded to the network. First, it checked to ensure the flashdrive carried a unique ID approved by the system; then, it searched for the unique ID of the owner of the system. It beeped once, and Setin entered in his personal authorization PIN. Lisa entered in a second PIN; the two PINs allowed the system to verify that two different individuals were in the room.

“Well,” Setin thought, “It validates that two different PINs are known by the individuals, or individual, in the room. A pretty big technical oversight.”

Once the various security protocol hoops were jumped through, the USB port to the mainframe unlocked and could be opened. When the flashdrive was loaded in, the server authenticated it before allowing it to be opened. Compared to plugging in a flashdrive at home, the production took nearly five minutes, which Setin thought would be a problem if they needed to immediately use a program from a flashdrive.

Pallas had waved away that concern: “Software doesn’t work like in the movies. You’re not going to see a big countdown until the virus destroys the system, with seconds to spare before everything is corrupted. An ounce of prevention is worth a pound of cure.”

And now, the three of them went to get coffee as the simulation ran. Setin locked the door behind them, and entered the lockdown PIN, a unique one-time PIN issued to lockdown the room to ensure no one could interfere with the program that was running, or remove the flashdrive and try and force in a new one. The PIN was encoded and sent to Setin's PDA. Setin immediately put the concerns of the simulation out of his mind and started thinking about whether he was in a caramel mood or not.

Ivan didn't really look like a Russian, Elizabeth thought as she boarded Shuttle Two. There were a dozen shuttle bays, and the simulations and practice drills had shown that between the twenty-four shuttles and the detachable sections of the Drake, it would be possible to evacuate the crew in under fifteen minutes. This hadn't proven comforting during the training drills and simulations where the ship was destroyed in under fifteen minutes.

"Welcome aboard, buckle up and make sure your arms and legs are inside the shuttle at all times."

Elizabeth just nodded to his greeting as she buckled in and checked her suit one last time. They entered the shuttles fully suited, except for the helmet. Some of the more paranoid wore their helmets anyway and simply left the visor up.

"It'll be a bit before we reach Tereshkova, so you might as well get comfortable," Ivan said. "Shooting the shit is a good way to kill time."

"I'm not really a shit shooter."

"Alright, alright. Happen to catch the scores from back home? I haven't had a chance to check my fantasy teams," Ivan said as he waited for clearance to launch. Ivan was skinny, almost weak looking. Like a lot of the military ranks, Elizabeth was fairly certain that "Sergeant" was more of an honorary title for him. He'd wash out of any bootcamp she could think of attending.

Being wiry and thin weren't the only strikes against her image of him as Russian. She imagined Russians as big bears of men, with thick beards, thick muscles and dour, resigned attitudes. Ivan didn't seem like he could grow in stubble, and most of all, was black. The only black Russians Elizabeth knew about was the cocktail.

Ivan drummed on the instrument panel with his gloved hands, it sounded like Sweet Home Alabama to Elizabeth's ears.

"I'm here because you can't speak Russian," Elizabeth said. "I brought up your personnel file; do you know why it says you can?"

"No clue," Ivan said. "I took a year of Spanish, that's the extent of my foreign language."

“Did you have Russian citizenship?”

“Nope,” Ivan said. “My grandparents on my dad’s side emigrated, well, let’s be honest: fled, Russia. He met a nice Kansas girl got married. Six months later, I was born.”

Now that he said Kansas, the accent was easy to place. It had been bothering her that she couldn’t completely place the voice, but now the Kansas accent was impossible to miss in everything he said. She even thought his movements reminded her of the midwest.

“So, you’re the ship’s Rosetta Stone, I guess?” Ivan asked her as the silence dragged on and he forgot the beat to whatever he was drumming.

“I’m the communications officer, and apparently, the only one who speaks Russian.”

“Well, on the bright side, once we’re done with the Tereshkova, that’s a skill we’ll never need again.”

“Ivan, telling a girl she’s expendable is not the best way to butter her up.”

“No, no, no. You will be expendable. Completely different; it means right now, you’re essential.”

Elizabeth settled back into a comfortable silence. Ivan shrugged and decided to start drumming out a new song that Elizabeth didn’t recognize. Eventually the computer gave them the green light to launch into space. She felt the sudden acceleration and watched as Ivan adroitly guided the shuttle into the expanse of space.

The feeling of seeing space through the shuttle’s cockpit was different than the bridge. The bridge was large and impersonal; you knew that what you were seeing was being shared by every other person on the bridge. It was like intruding on a private moment between lovers, Elizabeth thought, as her eyes drifted through the stars.

If she were qualified to pilot the shuttle, she would find every excuse to secret herself away alone in one to drink in the view. Each distant pinprick of light, each swirl, an infinity of possibilities. This is why she had joined the Pioneer Program, and this is what she lived for. Even with just Ivan there, humming to himself as he aligned and made way to the Tereshkova, she felt as though her private love affair was being sullied.

“You know what I like the most about space?” Ivan asked her. She just shook her head, trying to be cordial. “Possibility. Think about it, you know how unlikely it was for life to pop up on Earth, right?”

“Statistically very unlikely.”

“Well, yeah, unless you’re a Creationist, but you don’t strike me as the sort.”

“I’m not.”

“Right, so, statistically very unlikely. But, look out there. How many other statistically unlikely things you think are out there?”

“Could be none.”

“But it could be all of’em,” Ivan said. “You know Emma?”

“One of the crew?”

“No, I’m asking if you know some random person back on Earth despite the fact we’ve never shared a single social circle besides the Program,” Ivan said with a good natured chuckle. “Of course one of the crew.”

“She’s the shuttle pilot who was injured, isn’t she?”

“Yeah,” Ivan said. “She normally works doing experiments with the nerds in the physics labs. She just happened to take flying lessons back home, so they drafted her to be their pilot.”

“What about her?”

“She’s one of those physicists that believes in the multi-world theory. You get me?”

“I’m familiar with the theory.”

“I think it’s wrong,” Ivan said. “What do we need multiple, parallel universes, when there’s a whole universe of possibilities out there?”

Elizabeth just nodded her head, not really wanting the conversation to go further. She had a very simplistic outlook on science. The theoretical scientists that postulated there were worlds where Elizabeth never married John, gave up on the Pioneer Program, died because the friendly dog she ran up to pet when she was five turned out to be rabid, and so-on and so-forth were really beyond her ability to care. If those worlds existed, there was no way to get to them.

Of course, when she had suggested this to the captain during a lull on the bridge when he had asked about the same thing, the captain had turned on his sardonic grin and just said: “Sort of like the moon, right Armstrong?” Since then, she’d been a lot more careful about speaking openly on the bridge.

“You can settle in for a nap if you want,” Ivan said. “Tereshkova’s only got one runway, and it is filled with junk right now. It’ll be about forty, fifty minutes before we can dock.”

She wasn’t planning on sleeping, but between his humming and the comforting blanket of void and stars

around them, she felt her eyes get heavy, and then found her dreams slowly leaving space and drifting back to John.

Lewiston found that she was most comfortable among the neuroscientists. So, when she needed insight, that's where she went. It was a small team, maybe five doctors, all in their mid-forties, all men with a variety of receding hairlines. Except for one, who still seemed to have a full head of hair. This, Lewiston thought, made him the alpha neuroscientist. Sure, they all had a bit of extra weight or a gut, but this guy? He still had his hair.

"Do we have the brain scans for the Columbus and Drake crews?"

"Yeah," said Dr. Harry Chen, the haired, Asian neuroscientist. He wasn't the tallest, but he was the one who bothered to talk to Lewiston outside of direct work channels. Her grandkids had gone to his kids' school. Being able to bitch about the kindergarten teachers together had helped them bond.

"I want to look at them; send them to my office."

"We're really not supposed to share that sort of medical information."

"Don't waste my time getting Pallas to send a memo down, just send it."

"Just give it to her Chen," one of the baldest said. "It's not like she can do anything with it anyway."

Chen seemed to debate this in his head, while Sylvia Lewiston tried to analyze their group dynamic. Chen was clearly their leader, but he was easily swayed. She had loved that about him, because it meant she could get away with a lot more at their expense than with the other engineers. Not only that, Chen's work on workload optimization and electronic tasking had served to help reduce work fatigue and burnout among the various crews to the point they could cut back staffing, which allowed for smaller ships.

Neuroscience was rarely thought of as a way to save money, but thanks to Lewiston and Chen, it had proven to be a real path to profit, as Pallas called it.

"What do you need it for?"

"I need to compare with the polygraph we gave at the time," Lewiston said. "I've already got that data."

The neuroscientists all shifted uncomfortably; they seemed to have guessed at what she was looking for. Chen frowned and then shook his head. "I can't give it to you for that. We didn't miss anything."

"I'm not saying you missed anything Chen," Lewiston said to him, though everyone knew that was the implication. "We just need to see if there's any discongruity between their answers and brain state."

“That was part of our initial vetting process. The people on the vessels are loyal and stable.”

“That’s what I’ll put in my report. I still need the data.”

“No,” Chen said. “Come back with a memo and then I’ll give it to you. We could get sued just giving out information like that.”

“You’re just being an officious prick Chen.” Her idea of bonding was rather quaint.

“My hands are tied,” Chen said. “What’s going wrong on those ships is mechanical and user error. We didn’t miss anything during the crew screening.”

“I’ll be back, and when I do, you’re going to wish you’d just given me the damn data now,” Lewiston said. “Mr. Pallas hates to have his time wasted.”

“So do I,” Chen said. “I’m sure we’ll see you later, doctor.”

Emma Winston hated hospitals. The first night she had to stay there in just a hospital gown, which felt all too short on her six foot two frame. That left her feeling exposed to the world. When her coworker had come back with a set of clothes she could change into, she had been ecstatic. She had never been so glad to put on her uniform pants.

She also hated the fake happiness that the doctor and nurse staff showered on the injured. Right now, she knew there was only one other patient. He was in quarantine, because apparently they had fed him something and it was causing him to have a variety of unpleasant allergic reactions. They were still trying to isolate what he was reacting to, but Emma had decided that it would just need to run its course. She remembered getting poison ivy as a girl, and all the calamine lotion in the world did nothing to sooth her.

Sometimes, you just had to let things run their course.

Like the tests that needed to be done to confirm she was clear to go back to work. The hit to her head had caused some concern of a concussion, and the continued hospital stay had her worried. There was some minor swelling, which concerned her, but didn’t concern the doctors too much. Or, at least, they didn’t tell her they were concerned. Lying to comfort the patient was probably doctoring 101. She was still thinking these things over when she heard a sudden flurry of activity outside the sick room.

The medical bay was set up like an old-time doctor’s clinic, with a waiting room in front of a room divider. In the waiting room, a nurse or secondary on-duty doctor waited by the reception window to provide forms and other assistance until “the doctor is ready for you.” Patients were then led to the various offices, some set up for general practice, one set up for the three ships’ dentists, another for the

two gynecologists, and then a secured lab that Setin had insisted be added for “analysis of space artifacts that have not properly been proven safe for human interaction.” He was not known for brevity.

One of the nurses had told Emma that the nurses called it the Twilight Zone. Next to the Twilight Zone was a small morgue, which everyone just sort of silently acknowledged was there without discussing its purpose. Burial at space was the agreed upon method of body disposal, but Lewiston’s paranoia had insisted on one, in case there was a need for an autopsy.

If you kept going through the clinic areas, there were beds for the sick or injured, double rooms that could house about one-hundred. The ship’s chief of medicine, Dr. Abigail Rutherford, had worried that there may not be enough beds in case of an emergency. The captain had dismissed her concerns: If they needed more beds than that, they could quarantine the nearby dormitories.

Once through the convalescence rooms, you reached the emergency clinic. This was set up in a much less clinical fashion. It was a fully staffed trauma center, probably the one part of the budget that no one had argued with. Not even Hector Pallas had suggested to cut any corners here; the crew was on a regular rotation of blood and plasma donations for their crew mates. There was a serious concern about the lack of transplantable organs that the crew could take, but Pallas had not managed to get cloning technology to an adequate level to convince the rest of the boards to allow the experimental technology aboard the ships.

So far, Emma was the only one who had needed the trauma center in a life-or-death race. The allergic man, after receiving an antihistamine, had been able to breathe almost immediately. He was living an unpleasant existence, but he wasn’t in danger of dying. Emma, however, had needed surgery nearly immediately after she was pulled from the damaged shuttle. She still couldn’t remember the moment she decided to hit the retro-pulse, but it had slowed her enough that the shuttle didn’t crash through the airlock.

What she didn’t remember is why she was flying alone, or even why her restraint was open. They had tried to question her about it, but nothing was coming. She was worried that that was the real reason they hadn’t discharged her yet. It was a polite way of keeping tabs on her without having to go through the uncomfortable process of deciding if she needed to be detained in the brig. Because, normal people don’t go out on shuttles alone, normal people don’t remove their restraints in the middle of an emergency landing, and normal people remember to sign out their reason for leaving, or at least, have a briefing on file with the shuttle authorities, which the pilots jokingly called the “flight tower.”

She had done none of those things, and she didn’t know why. This worried her, and she knew she wasn’t one of the most security conscious members of the crew. She hadn’t seen any members of the security team lurking about the medical bay, but she bet that they were there somewhere, just making sure she stayed in place. Which she had been perfectly content to do, but she was starting to go stir crazy. And she now had pants, which really helped get her over the initial prudishness of walking around in a skimpy hospital gown.

She buzzed a nurse to ask to be disconnected from the monitors and allowed to take a short walk around the deck, the response back was quick and curt.

“I can’t yet, Ms. Winston. The captain has asked you to be on standby. He’s asked me to let you know he will be personally coming to visit you in the next hour.”

Emma thanked the nurse, then shifted uncomfortably in the hospital bed. Normal people don’t get visits from the captain.

Dr. Sojaei hated having to bear bad news. He hated a lot of the more managerial portions of his duties. He felt that it was stupid that, the more one published and discovered, the less one did actual hands on science. Five years ago, he would not have been the one to be sitting in a meeting with a board from whatever fuel company (he checked his notes, Northern America Shale and Gas) had screwed them.

He had intended to go in and be calm, reasonable and extract apologies from the corporation. That was how he liked to do business: Civil, clean and quick. That way, he could be back at the laboratory before lunch. But, when Harvey Amin had been assigned to accompany him, he realized that Pallas thought this required a more direct touch.

Amin was not one of Sojaei’s best engineers, in fact, he only had a bachelor’s in the subject. What Amin did have was a prestigious law degree from Duke. It was another of the dirty tasks that Sojaei wished he didn’t have to deal with; laws tended to get in the way of his idea of scientific advancement. Not that he was planning anything heinous, like cutting into the human brain to see if he could induce emotions. That was strictly Chen’s department.

But, tariffs, import restrictions, and other economic issues stymied Sojaei at every turn. He had wanted to try to create a fiber using a new genetically modified hemp from Asia, but U.S. customs vetoed his request. Then Pallas had vetoed his request to import it on the black market anyway. He remembered that meeting with Pallas, because Hector had just shook his head: “We can’t risk sending one of our chiefs of engineering to jail because he wanted a little weed.”

It was after that little self-expression that Pallas had assigned Amin to join Sojaei’s team. The two had hit it off as well as could be expected; Sojaei viewed Amin as an unwelcomed minder and snitch. Amin viewed Sojaei as a potential loose cannon. He hadn’t yet gone off on his own, but the seeds of that rebellion had been planted. Despite this, the two had become congenial work colleagues, even joining each other at happy hours to discuss their lives outside of the office.

They had a lot in common; Sojaei’s family was from Iran. Amin’s family, though Persian by nationality, had some relations in Iran as well. Both had left the Middle East because the West had offered them promise, better money, and a life in a stable part of the world that didn’t run the risk of igniting at a madman’s order, a dictator’s pique, an oil boom or bust, or just because it was too damn hot.

In addition to their interest in engineering and shared background, they both had a love of American literature, which they had found out when Amin had said that the heat in the Middle East was often as oppressive as the regimes.

“Well, yes. Maybe if we had more mint juleps, we could get everyone on the same page.”

“It didn’t work in The Great Gatsby.”

“So, you’re familiar with Fitzgerald?”

“Not much beyond Babylon Revisited and Gatsby,” Amin said. Sojaei had brought him a collection of short stories the next day, and that started the rocky friendship between minder and loose cannon. They talked about Twain, O’Keefe and Fitzgerald during their outings, in between updates about home and the most recent news in engineering, though Sojaei tried not to delve too deeply into the particulars since Amin was hardly an expert on that subject.

Today, though, they sat at a very impressive board table with a team of lawyers from the Northern America Shale and Gas company. They seemed to be idly flipping through their various briefings and read aheads, while Amin waited patiently for some signal it was time to start. Sojaei whispered: “We might as well wait. They probably consider all of this time billable anyway.”

“So do I.”

“Well, then, let’s get started,” Sojaei said, clearing his throat to get everyone’s attention. “Hello, as you know, my name is Dr. Youssef Sojaei, this is the Pioneer Program’s counsel in this matter, Harvey Amin.”

“Pleasure to meet you; my name is Jonah Whitaker, representing Northern Shale and Gas. I understand you have filed a complaint regarding a recent shipment of rocket fuel?”

“Yes,” Amin said, taking over. He spoke in a much different cadence than when the two spoke on their familiar terms. It was more clipped, as if he was chopping his ideas into sound bites for their consumption. “Three days ago, Columbus, one of the Pioneer Program’s flagships, began to suffer engine problems. After extensive diagnostics, we’ve determined the cause to be that the fuel provided had fouled, possibly due to improper storage conditions prior to our receipt.”

“I’ve read over the Pioneer Program’s allegations, but I’m afraid my client doesn’t see how it is at fault,” Whitaker said. The way that they talked about the corporation irked Sojaei. “All the pre-delivery checks and paperwork shows that proper precautions were taken.”

“We’ll be submitting a request for all of those records to confirm that ourselves.”

Whitaker just shrugged to that. It wasn’t news to anyone at the table.

“Furthermore, we have served your client with a civil suit for damages caused by the delay of the Columbus’ mission, the cost to replace the fuel, the cost of a resupply mission, and for a few other things you can find in the complaint.”

Whitaker idly picked up the copy that Amin slid across the table. Again, he gave it a noncommittal shrug and handed it to a junior member of the firm. “Is that all?”

“Here is a list of witnesses we would like to depose. If any of them refuse, we can do it the hard way, but I have an offer to help keep this all off the front pages and would make our client withdraw its complaints,” Amin said.

“You’re offering a settlement?”

“The exact amount is enclosed in this sealed envelope, which I am requested to ensure gets directly to the Board of Directors here,” Amin said, pulling out a boring manilla envelope sealed with the Pioneer Programs wax emblem. Whitaker added it to his briefcase.

“I’ll make sure my client gets this.”

“The offer is only good for 48 hours,” Amin said, glancing down at his watch. “And, that is starting now.”

Bill Helmsley liked taking his coffee breaks away from the bridge. He had served on some of the early Pioneer Program satellites and space stations; space didn’t hold any more mystery to him. He was almost forty, and he felt like he should be having a perfectly good midlife crisis any minute now. Since there was nowhere for a motorcycle or sports car, he had settled into seducing the young women among the crew.

He knew the rules said that there were to be no romantic relationships among the crew, but his idea of sex without romance didn’t seem to break the rule. It was a fine technicality he was pretty sure HR and the captain wouldn’t agree with, which is one of the many reasons he decided not to tell them about his arrangements. He even thought they were healthy; after all, if you’re going to trust some woman you barely know with your life on the ship, why wouldn’t you trust her enough to sleep with her?

One of the women had asked him if he applied the same logic to his male colleagues, and he didn’t really have an answer for that. Honestly, the thought had never occurred to him. The idea of homosexuality wasn’t novel; he knew there were gay people out there (possibly even aboard the Drake, he had never bothered to ask about anyone’s orientation.) It had just never occurred to him that he could be one.

The idea had intrigued him, but whenever he tried to imagine himself making a pass at one of his male crewmembers, he just didn’t get the spark. But, if you put him next to a pretty woman, a dozen different approaches came to mind. Next time he approached that woman, he’d have an answer. Though, he

doubted it would get him much farther with her. He had already rotated her in his mind to “unlikely to sleep with,” and so tried to avoid talking with her.

Today on his coffee break, he was trying to meet up with one of the nurses in the medical bay. He hadn’t yet made his way there, and he always liked to experience new things. That’s why he had started exploring space with the government and now the Pioneer Program. It just so happened that the new things he was experiencing were women instead of galaxies. After all, you see one star, you’ve seen almost all of them. But, even twins handled differently, he’d learned. “Women are like snowflakes,” he decided, “Unique and beautiful, and they melt on my tongue.”

That line had gotten him into bed with one of the mechanics.

“Excuse me, we haven’t met,” Helmsley said, taking a seat at the table next to the nurse. She was cute, he decided. Not in the top quartile of the crew’s women, but definitely worth investing in. She was wearing the Drake’s royal blue scrubs, with her brown hair pulled back in a ponytail.

“I’m Leona,” she said, giving him a friendly smile. He had learned to tell the difference between flirty smiles, polite ‘go away’ smiles, and friendly smiles.

“Lieutenant Bill Helmsley, navigation officer on the bridge.”

“Are you a real lieutenant?”

The question was a direct one; while a lot of the staff had some sort of rank or title, for the most part, there were two tiers to the ranks. There were real, actual military members from the various Earth governments -- the captain was the highest actual ranked military personnel. Others, received sort of honorary titles from the Pioneer Program.

“I’m double dipping; retired Air Force once the Pioneer Program told me I could get to space instead of test flying fighter jets,” Bill said, then added a sly wink. “Though, that last parts supposed to be top secret, just between you and me.”

And about six other women, Bill added to himself.

“So, what do you do on the bridge all day?”

“You know, this and that, make it so, all of that,” Bill said. “What do you do here? I’m guessing something in the med bay, unless you like wearing scrubs as a fashion statement.”

“I’m a nurse there; I had a choice between a tour in space or at a hospital in New York. I thought this would be a lot more fun.”

“It’ll make a great story for your kids some day,” Bill said. “But, hey, the captain is a lot more strict about

our break time than other supervisors. Maybe we can pick this up after I get off duty."

"Maybe," Leona said. Bill shook her hand and then made his way back to the bridge, whistling nothing in particular.

Hector Pallas spent his lunches with his schedule and various reports. He told his secretary to block off this part of his calendar every day. "I need it for some me time," He told her. He had an image to keep up, so she had her block it off as a meeting with some random name from the phone book each day. A new, exciting person no one in the program had ever heard of. Usually, the secretary just rolled her eyes at his strange requests. Today, instead, she asked if he was sure.

"Quinton wants to see you," She said. "It's urgent."

"Then put him on my calendar."

"I'm trying sir, but you're booked up the rest of the day today. You know how Mr. Quinton gets when you tell him no."

Hector didn't know how Elvis Quinton got when you told him no. Because when Hector told people no, they apologized for wasting his time. When secretaries told people no, he imagined they got different responses.

"Has he been copping an attitude with you?"

The secretary folded her arms defensively and fidgeted. "He's just been very insistent on talking to you, sir."

"Did he say what about?" She just shook his head. He flipped through the rolodex on his phone for Elvis Quinton; head of the fundraising for the Pioneer Program. The guy who got to shake the hands of rich people to make them feel important. The sort of guy who could go to four parties in a day and come back with enough checks to keep the place running another month. A man so utterly charming that the rest of the staff hated him, except Dr. Lewiston. But, who knows how she decided who to be pleasant with.

"Fine, put him on my calendar for lunch," Hector said. "Actually, never mind. Let me do it. Go on, take a long lunch today. You've been indispensable."

The secretary didn't offer even a token bit of resistance. She thanked him, grabbed her purse and ducked out of the office without a moment's hesitation. He then called Quinton directly; Pallas had made it clear no one was to call him directly. Several of the other senior members of the Pioneer Program had also set up similar rules about the proper way to contact them, and Hector gleefully ignored all of them. If the boss wants to talk to you, he'll talk to you, Hector had said when Lewiston objected to him calling her on

her personal cell number.

For some people, the Program was just another employer. For Pallas, it was his life. Not just his life, but a great way of sending a message to the world that he and his people were something else. So, if you were going to be one of his people, he demanded the same level of dedication from you that he put into it. So, when he got Elvis Quinton's answering machine, he was curt and crisp.

"You've got thirty minutes of my time, and you just wasted one of them. Lunch, my office. 12:00. Don't eat anything smelly."

Leona made it back to her shift a few minutes later than she should have. At least, according to the clock at the nurse's station. The clock that had been in the cafeteria was a few minutes slow. While Leona was doing her rounds, she also noticed that some of the clocks in the patients rooms were a few minutes off as well. In a normal hospital, this wouldn't have been anything that really concerned her. She would have just wound the clocks to the right time and added that to her list of ways to improve her bedside manner.

But the clocks in these hospital rooms, and in the cafeteria and nurses station, were all digital clocks that supposedly spoke to Puff. Now that the Drake was divorced from Earth, they had decided to keep duty rotations based on a twenty-four hour cycle (what some of the nurses had started calling Drake Days.) Leona tried synching her smartphone to Puff's time, and it came up with the same time as the nurses station; she then tried again and Puff gave her a different time. She filed a ticket with the help desk, and then let the problems with the clocks slip to the back of her mind.

She checked the food for their two patients, what she jokingly called guests in her own head, and then scanned the contents list of both. While the meal for the woman didn't really matter, she had no known allergies and had eaten this before, Leona was acting as a redundant check to ensure that the computer's menu didn't include anything that the allergen tests had shown a reaction with the man. Seeing nothing on the report, she put the two trays on the rolling cart and delivered the first tray to Emma.

"Here's your lunch," Leona said, trying to sound cheerful. How she ever became a nurse escaped her, as her bedside manner was always atrocious. It wasn't that she hated small talk, she just felt uncomfortable talking to people who didn't look like they wanted to talk to you. "I hear the captain's going to be giving you a visit later today."

"Do you know why? I didn't do anything wrong, did I?"

"Maybe he has a crush on you," Leona said, but then seeing that Emma was actually worried she tried a different approach. "He's probably just being friendly and to show that he cares."

"He could just send a card."

“We don’t have get well cards on board,” Leona said, after electronically signing the machines in Emma’s room to show that she had reviewed them during her visit.

“I like e-cards. You could tell him to just send an e-card.”

“I’m sure it isn’t anything to worry about; I could bring you another brownie after I finish my rounds if you want.”

“I don’t really like the hospital brownies, but thank you.”

“Put it on the comment card; we told Dr. Rutherford that rehydrating brownies wasn’t the right way to go.”

“Have you ever met the captain?”

“No,” Leona said as she pushed the cart out the door, “But I hear he’s a very pleasant man.”

The visit to the quarantine was a bit slower and a lot less pleasant. First, she had to get into a full body suit. These were significantly less bulky than a hazmat suit, and the digits in the gloves allowed for much finer manual dexterity, but they still were uncomfortable to move around in. The suits were normally used for the protection of the person inside the suit, but the doctors had suggested that those entering the quarantine use them to prevent additional contamination.

The patient was awake and nodded weakly to Leona as she entered.

“How’s my favorite patient today?”

“Feel like I want to die. What’s on the menu today?”

“I want to lie to you and say it is something you’ll love, but I can’t,” Leona said as she put the rather dry oatmeal and water in front of him. “If it makes you feel better, this is helping us figure out what we’ll feed anyone who needs to be thrown in the brig.”

“At least I’m still contributing to the mission then,” the man said, taking a bite. Leona took a seat in a chair; she knew that the man -- Jeremy -- was lonely. Her bedside manner might be terrible, she thought, but she wouldn’t just run away.

“Is there anything you’d like from your bunk? I could grab it for you and bring it back after my shift.”

“I’ve got my smartphone, so I’ve got my books, but thank you.”

“If you do think of anything, just let me know,” she said. Jeremy took a few more bites, then looked at her.

“You don’t have to sit here if you don’t want,” He said. “I’m sure you’ve got lots of things to be doing.”

Leona smiled and took the hint. “I’ll come back in a bit to take your plates away,” she said, as she left the room and exited the suit. She was just settling into the nurse’s station when an alert buzzed out along the computer warning about an emergency in the quarantine room. Leona ran back, falling in behind the pair of on-duty doctors and the other nurse.

Elvis Quinton had been a college ball player for Ole Miss. He still had the broad shoulders and thick legs that had powered him through defensive lines to the opposing quarterback, and they were not falling away yet. He had studied economics in college, but it was in the rudimentary way of the man who thinks he’ll earn his meal ticket elsewhere. A broken arm his senior year kept him from playing, which in turn kept him from being drafted, which in turn, brought him into working for a non-profit.

His original job had been looking at data for their fundraising committee, budgets, and making sure that everything was accounted for in case the IRS came looking. He proved to be relatively terrible at this real work. It wasn’t that he was stupid; it wasn’t that he lacked the work ethic. He had woken up at four in the morning for the past fifteen or sixteen years of his life to train for hours, followed by a dietary regimen tailored to make him who he was.

It was just that the work itself wasn’t to his liking. He had never wanted to be the quarterback for his team. He never wanted the glory of running for a touchdown or the thrill of catching a ball for the first down. Those were essential parts of the game, but what he wanted to do was make an impact in a way only he could. He found that on the defensive line; pushing through the enemy and forcing a bad throw or sacking the QB, that was the thrill of the game. Forcing the other person to make decisions, and letting your team take advantage of your initiative. Some coaches had said to him that the offense wins games, others had said that the defense won the game. He had come to the conclusion that the defense created opportunities, and the offense pressed the advantage. That’s how he viewed himself: A man who made great opportunities.

That’s how he found himself in fundraising. He didn’t know how to use the money that he brought into foundations. He couldn’t tell you who should get scholarships, what research was promising, or what buildings needed to be preserved sooner rather than later. That was for experts in their field -- the offense -- to figure out. His job was to keep the money flowing, defending the bottom line.

And he had played a robust, aggressive defense. There was just one problem: Not a lot of people want to invest in something as dicey as space travel. Even fewer want to invest in something as crazy as city-ships. Those that do are, well, crazy. Elvis Quinton had found that winning them over was an odd mix of negotiating, wheedling, and favor trading.

The favor he was working on now was heavy on his mind as he knocked on Pallas’s door.

“It’s open. Come in.”

“I’m sorry, I wasn’t sure if you were here,” Quinton said, taking a seat across the impressively large desk in Hector’s office. Hector nodded and took a bite out of a tuna sandwich. Quinton wasn’t even sure if the man liked tuna fish, or just wanted to make it clear that he was allowed to eat smelly things.

“Clock’s running Elvis.”

“Eccentric billionaire out in California wants his son’s birthday party inside one of the city ships before it launches. Kid’s birthday is about five months away.”

“No.”

“It’s a lot of money, Hector.”

“The tech is highly classified and delicate,” Hector said, letting the informality slide.

“I thought about that,” Elvis said, producing a hard copy report. This was something that Hector hated; he hated surprise reports. He preferred to be given all the information and contingency thoughts before the meeting. This caught him off guard, and he pushed the sandwich aside to read it.

“Bottom line up front? My plan is that we construct a fake city ship for tours,” Elvis said. “It is a big upfront investment, but think of what it positions us for.”

“I’m not making a theme park.”

“Look, if we get this one donor, it more than pays for the mock up,” Elvis said. “Think! We can rent it out for weddings, birthday parties. After the first use, it’ll be providing pure profit. It would make good PR too. Ask Dr. Lewiston; she’ll love it.”

“Have you asked her yet?”

Quinton shifted uneasily. “Not yet; more of a guess that she’ll love it.”

“So, you want me to apportion some of our engineers and mechanics to build this fraud, so that we can rent out the space and mop up kiddie vomit?”

“We could contract the fabrication out,” Quinton said, turning the report to a later page with a price breakdown. “It wouldn’t take away any man hours, the cost would not be appreciably higher, when taking into account the ROI.”

Hector tapped the paper with a tuna fish stained finger. “Bring it to the board at tomorrow’s morning

meeting. Not going to guarantee I'll support it, but I'm not going to be only one making the call on this one."

"Thanks sir," Quinton said. He stood up, and Hector motioned him to sit down.

"We're going to use the last ten minutes or so of our time to talk about how you handle my staff," Hector said, and Quinton felt the sigh coming out of him. He knew the lecture inside and out, so while Hector dove into it, he started plotting how to win over the votes he'd need from the board to get the mock up built.

"Wake up lieutenant, we're lining up for our approach. Don't want you to be rubbing the sleep out of your eyes when the Russians say hello," Ivan said, giving her shoulder a gentle shake. Elizabeth blinked a few times and tried to start thinking in Russian. It was one of the key steps to being fluent and to avoid the few seconds delay between receiving a message and returning a reply.

"How did you manage that without speaking Russian?"

"The computers talked to each other," Ivan said. "I guess they talked in binary? Hell if I know."

"If I'd known that they could do that, I'd have just had the captain put the order manifest on the shuttle's computer."

"That would miss out on the human touch. Besides," Ivan said, "rumor has it the captain doesn't trust the machines too much."

"I don't gossip, Ivan," Elizabeth said, which was her polite way of trying to redirect the conversation. It was less a rumor, and more of a painfully obvious fact that everyone tried to pretend wasn't a real fact. He went back to drumming along to a song she didn't recognize.

The approach was smooth, and the Tereshkova's conveyor belt landing system brought their shuttle to a clean stop. The air lock shut behind them, and the passage forward opened about a minute later as the docking bay allowed oxygen to rush in to fill the gap. In a few minutes, Ivan and Elizabeth were disembarking; Elizabeth took the Russian who was in front of their collection of forklifts and pallets aside to speak.

Ivan began to walk around the piles of metals and other supplies, including a singular large wrench that made him smile. He looked back at his shuttle and pulled up the schematics on his smartphone. He counted off the pallets. Elizabeth and the Russian were checking the manifests alongside him, speaking in a language he didn't understand. They were comparing their lists, checking each item off as they went, sometimes with the Russian pointing out where the item was to ensure it was on the crates.

“Hey, lieutenant, this look like everything?”

“I haven’t finished yet,” Elizabeth said. “But, yes, this looks like everything.”

Ivan looked back to his smartphone, turned it to the side, then flipped it back. “Who put the manifest together?”

Elizabeth excused herself and stepped away from the Russian to see what Ivan was working on. “Puff put it together, why?”

“It’s not going to fit on the shuttle. There are about four too many pallets, and that’s without me checking for weight capacities.”

“Weight capacities? We’re in space.”

“Yeah, but we’re docking where we’ve got artificial gravity. The weight’ll matter when we load and unload.”

Elizabeth winced; it was an obvious thing, but she had completely overlooked it. Judging by the schematics Ivan was showing her, the computer had also somehow overlooked the volume in the shuttle.

“So, you’re saying we should have sent two shuttles here?”

“Yeah,” Ivan said. “Finish checking the manifests, maybe they just have too much out here, and we’re miscounting. Once you know, let me know, and I’ll radio the flight tower and ask for another shuttle.”

“Could you call Shuttle One and check how the pick up at the Ride is going?” Elizabeth asked; Ivan nodded and she turned back to apologize to the Russian and continue again with the manifest.

Ivan clicked his phone to the directory and asked to be patched through directly to Shuttle One. It rang for about thirty seconds before a man’s voice picked it up.

“Hey, this the Drake? This is Shuttle One.”

“No, this is Shuttle Two. How’s the pick up going?”

“Yours screwy too?” Ivan couldn’t tell by the voice who the pilot was. He tried to think who was on shuttle duty with him, but with Emma hurt, the roster on Puff didn’t match with the reality. They’d found out that only the tower had permissions to change the roster, and the tower required approval from their senior officer to confirm the change. Everyone found it easier to just go out and stop using names, only referencing their shuttle numbers to avoid any questions about why so-and-so wasn’t taking a flight. The only problem were the seven or eight remaining female pilots of the fifty some pilots had a bit harder time pulling that off.

“Yeah,” Ivan said, taking a few steps away from the Russians and leaning against the shuttle for privacy. “A bit too much stuff.”

“We’re too light,” Shuttle One said. “Like, our manifest differs from what the Ride got.”

“Here, look, let me send you our manifest. Can you compare it to what you were given and what the Ride was given and call me back?”

“Sure thing. Shuttle One out.”

Ivan looked at the manifest, then at the schematics for the shuttle one more time. He came around the corner and motioned to the lieutenant. “Hey, lieutenant, before you keep going, do one thing for me. Check the total numbers on your manifest and compare it to the Russian’s.”

Elizabeth relayed this to the Russian, and they skipped to the back of their manifests. Elizabeth simply said, “Shit.”

Lisa Peters never really understood the social convention of getting coffee together with your coworkers. Coffee had replaced the three-martini lunch at some point in the 1990s, she decided, if not earlier. Social history wasn’t really one of her strengths, and it wasn’t one of her interests. But, three martinis definitely would have made dealing with Dr. Setin a lot easier.

He wasn’t a bad boss; he was an eccentric boss though. His most recent kick was on divergent evolutions. “Do you think sentience is tied to our physical forms?”

“What do you mean?” Charis had asked. Lisa hated asking those sorts of questions, because it made Dr. Setin answer them.

“Well, do you think that sentience could have evolved, in say, rabbits? Or do you think tool use and our physical structure are necessary components to sentience?”

“Rabbits communicate,” Lisa said, trying to put an end to this. “And birds are known to have tool use, so clearly, no. Sentience isn’t looked to those traits.”

“I’m not saying that they are like a chemical reaction, where mixing them necessarily leads to the following result,” Setin said between bites of a muffin. Lisa hated getting coffee with Dr. Setin for another reason: He also got baked goods. That dragged out the social encounter even longer.

Not that it mattered, she thought, glancing at her watch. The simulation was still running, so there wouldn’t be any work to escape to at the lab. Charis blew on her coffee, seeming to turnover Setin’s

problem in her head.

“So, the question isn’t, do tool use and language lead to sentience, but could sentience exist without them?”

“Yeah, yeah, that’s what I meant.”

“Without language, no,” Charis said. “You need some concept of language to have an ‘I’ and a ‘you.’”

“What is the point of the question, Dr. Setin?”

“Well, I’ve been thinking maybe we’re approaching our search for extraterrestrial life the wrong way,” Setin said. “We’ve been looking for the end point, right? The point where they’ll hear Beethoven’s Fifth or the Hallelujah Chorus and beam back some equivalent cultural touchstone.”

“That is a thing you’ve been doing, yes,” Lisa said. She was always careful to be clear that her role was in calibration and technical problem solving in the lab. The actual messages sent and received -- not that any were ever received -- were completely his domain.

“Well, maybe instead of looking for a contemporary or advanced society, we should be looking for ones not as advanced.”

“What would you suggest?”

“Well, remember the telescopes I had fitted on the city ships? I bet you thought it was an odd request, but there was broad support from the astrophysicists and astronomers, so we got it,” Setin said. “Tomorrow, I’m going to schedule some time, and our goal is to look for planets not that could support life, but rather, that have smog and pollution patterns similar to earlier periods in Earth history.”

“Then what? We fly to them and make first contact,” Lisa asked. Charis seemed thrilled at the idea, turning to look at Dr. Setin with bright eyes and a smile.

“Don’t get ahead of yourself,” Setin said. “We might not find anything that way.”

In a single motion he shoved the rest of his muffin into his mouth, swallowed and checked the time on his phone. “Alright, let’s get back to the lab.”

Dr. Abigail Rutherford had received a message as soon as the alarm had gone off in the medical bay. She had been in the middle of a meeting with the other senior officers, but no one stops a doctor from rushing out of a room after checking a message. She had ran to the medbay as fast as she could, cursing that they had put it in such an inconvenient place.

She flew into the trauma center and saw that the two doctors were operating on the patient. The two nurses were trying to hold him down as he flailed around convulsing. Rutherford pinned his arm and the nurse pinned his other. Leona tried to cradle his head to keep it from flailing about too much.

“Sedate this man, now,” Rutherford said to the doctors.

One pulled a needle, flash sterilized it -- a procedure that uses a high intensity, sudden burst of heat to reduce the need for disposable needles -- and injected it into the man’s shaking arm. He injected it, and the man gurgled in pain. The second doctor forced his mouth open and used a depressor to keep the tongue down.

In his other hand he had a suction machine they had grabbed from the dentist office to clear the vomit and saliva that was foaming in the man’s mouth to clear the air flow. His shuddering became less and less violent, and Rutherford finally was able to cuff one arm onto the table and helped the nurse with the other arm.

“What happened?”

“Convulsions started shortly after lunch,” Leona said. “That’s when his vitals fluctuated or fell enough to trigger the emergency alert.”

“What is the reaction to?”

One of the doctors pulled up the report: “I don’t see anything on here that should have triggered anything. He’s eaten this before, right?”

“That’s what the report says,” Leona said. “I manually checked the ingredients against the list of known genetically modified foods to ensure that the computer didn’t overlook something.”

“Well, something got overlooked,” Rutherford said. The second doctor kept his mouth shut, contenting himself with cleaning the airway. He removed the depressor once the patient was breathing easily and removed the suction machine, handing it to Leona.

“Get this cleaned.” Leona took the equipment away to sterilize it. The dentists were not going to be pleased with this.

Rutherford was reviewing the list of foods that the man had been given, and she was cross-referencing them with the computer as well. She knew that the nursing staff were well-trained and experts, but mistakes happened. She dismissed the doctors to type up their report and pulled a chair to use an adjacent gurney to lay out her tablet and the nurse’s tablet. She then pulled out her personal physical notebook, a luxury item that she had brought with her.

When she didn't wear her glasses, the screens could get blurry, or worse, be completely illegible if they were too small. Her own handwriting, despite being a doctor, was neat, blocky and easy to read. She flipped back to Jeremy's reported symptoms and cross-referenced her notes to the computer's. She didn't notice any discrepancies, but kept going day by day to try and see where something might have gone wrong.

"Everything looks right," Rutherford said out loud. She was a thinker and a talker, preferring to hear her own ideas to get a handle on them. "So, what caused this this time?"

She was looking at Jeremy, like a puzzle to be solved, when the monitors next to him started to beep madly. She rushed to the console, trying to discern what was happening. His breath had slowed dangerously, his heart rate was dropping, she felt for a pulse instinctively, even though the monitor told her it was fading fast. She could hear people running toward her, but she didn't know what to do.

They tried to get him breathing regularly again; once his heart stopped, they used a defibrillator. But, despite their efforts, Jeremy died, going out of the world quickly and silently. It wasn't until the autopsy that they learned that the sedatives that the ship had been issued had received additives from genetically modified crops to ensure longevity during storage. The same additives that had caused the initial and subsequent reactions.

Hector Pallas received the call from the captain about fifteen minutes after Ensign Jeremy Redmount was pronounced dead. It was the first time the two men had talked since the Drake had launched and Pallas received a perfunctory: "All systems green, will keep you updated," report. Now, apparently, all systems were not green. Systems were decidedly red; the problem was that Captain Theo Smith couldn't tell Pallas which systems were red, which were green, or, he had said with a dark humor in his voice, which were fuschia.

"Fuschia?"

"So fucked up I don't know what color to call them," the captain said. "Lieutenant Chardon is still aboard the Tereshkova and Shuttle One is aboard the Ride trying to figure out why the manifests are all different. My number one can't access parts of the ships that only have automatic doors -- an oversight I want you to have someone's head for, by the way."

"Noted."

"And one of my men is dead because we don't have accurate information about the drugs our med bay has been stocked with," Smith said. "There is going to be a full inquest; heads are going to roll. If you cut a single corner --"

"I didn't, I assure you."

“Before when it was just the lights not quite dimming right, or having to double check our math, I could forgive things being slipshod,” Smith said. “You’re just a bunch of civilians playing at engineer. But someone’s dead, Hector. No more games. I want you to give my people access to the ship’s complete systems. Now.”

“I’ll put the question to the board --”

“Now.”

“I can’t do that captain,” Hector said, standing to look out the window. It was still mid afternoon, but the sun was starting to set. It was a peaceful view, and he looked up into space, where he imagined the Columbus still was waiting for a new delivery to replace its fouled fuel, and where the captain was preparing to make an announcement and schedule the ensign’s funeral.

“What can you do?”

“I’ll let his family know; Lewiston’s already got a crisis plan for a situation like this. We’ll put that into play immediately.”

Smith just grunted, said thank you, and cut the communication. Hector didn’t think that he was pleased with the solution. It was times like this that Hector broke into his desk and pulled out his emergency cigarettes. The vapor ones helped with the craving to have something in his mouth, to feel the sensation of smoking. But, when the shit hit the fan, what he wanted was the rush of nicotine. The quick hit that calmed his nerves and took the edge off his addiction.

He took his time, watching the sunset and blowing the smoke out the window to make sure his secretary didn’t find out about his habit. Once the cigarette was just a stub he flicked it out the window, watching it until it disappeared dozens of stories down. He blew out one last breath into the air and then collapsed back into his office chair. He opened the drawer and flipped through the media crisis plans that Lewiston had prepared for him.

He flipped to the file for “Death -- Accidental,” and placed it on his desk. He hit the intercom: “Send Dr. Lewiston in. Track her down if she’s not in her office. I need to speak with her, in person. No substitute for in person. I need to talk to her now.”

He looked at the report, rubbed his temple, and started reading.

Part II: Forced and Unforced Errors

It was three days since Jeremy Redmount had died. The ship had taken on a somber, quiet mood. The entire crew seemed to be in mourning together, even those who had never met the man. The funeral had taken place the next day; a closed casket jettisoned into space. The event had disturbed several members of the crew, and the ship's lone psychiatrist was being overworked to try and see them all throughout the day. The Pioneer Program had set up video teleconferences with Earth-based psychologists to take the load off of him. But, most of the crew kept up with their day-to-day activities.

Among them was Peter Jones, one of the youngest members of the team that monitored the Drake's computer systems and coding team. They had given him some honorary title, some sort of officer, but he had quickly gone away from having any sort of standing formality. The other two leads on the program, Paul Garfield and Mary Hartman, had been given equivalent ranks, so they equally decided to not give a damn about them.

It was on the first day that they realized the happy accident of their names, and dubbed the computer system Puff the Magic Dragon. The rest of the crew routinely dropped the "Magic Dragon" part of the nickname, which irked Mary. Without that part, the name was just nonsensical, she insisted. Peter and Paul had gone along with her whimsy, but once the initial complications had started all three began squashing the various new and difficult bugs cropping up in the programming.

What bothered Peter the most was that there wasn't a rhyme or reason to the bugs, that he could see. Usually, when you went into the code, you could find out quickly why the machine was doing something weird. Someone had tried to code a shortcut and missed an operation, or forgot to close something. Quick, easy, sometimes comical. He remembered one of the first projects he had in high school that he kept failing to compile for days until he sat down again and, somehow, realized he'd overlooked closing a comment field. The entire program was just one long comment string, according to the computer.

Once he closed that, he still had hours of fixing the problem, but that was a sort of touchstone for him. The majority of bugs were human screw ups. Machines did exactly what they were told to do. They weren't creative; there was never going to be a HAL 9000 moment. At least, he honestly believed so. That's why the various errors had been bugging him, a pun that made Mary laugh every time one of them said it. There was no connection; the clocks running slow and fast seemed so arbitrary. All the clocks pulled data from the same place using the same process; if they were off, they should all be off in the same way.

It was the same with the shuttle accident and the manifests; there was no logical reason that the shuttle's landing program should have been so far off. All of the shuttles were the same, so the error should have manifested itself in the first attempted landing, not on some random one (Paul had looked it up for him, it was the twenty-fifth landing that Emma Winston had been injured in.) He had ran his conclusions by Mary and Paul, and they both agreed with his findings.

Neither of them liked it any more than he did though, which is why they were staying up late trying to

analyze the data one more time to see if they had overlooked anything. They knew they weren't the only ones still up; Dr. Rutherford's team (Peter only called her a doctor, even though there were plenty of other Ph.Ds aboard, since she was actually a doctor-doctor) was still up testing all of their various drugs and pills to see if any others had had changes done to them without notifying the central registry.

And, somewhere, the agriculture team was commiserating over losing one of their own. One of the first deaths in space, certainly the first one in the New Space Age. Jeremy Redmount would become famous, but it wasn't for any reason that Peter would want to be famous. He'd rather go on living his boring, humdrum life than become famous for accidentally being poisoned by the doctors trying to save his life.

"I don't think our conclusions make a lot of sense," Mary said. "Maybe people are just getting sloppy?"

"No, I checked myself. The computer's medicinals list was woefully out of date," Paul said. Where Peter was a fresh young face, Paul was the spitting image of the computer nerd. He was overweight, just barely under the limit placed on the crew. What was left of his hair was a long ponytail, longer than Mary's. And, he had the disgusting habit of picking his nose.

"Ok, so maybe we just have been given bad information from the start," Mary said. "I don't want to go to the captain with the worst possible scenario without gaming out the others."

"Bad information wouldn't make the clocks different," Peter said. Mary had to agree there.

"Ok, maybe there's a delay in running the time checks, based on the physical position of the systems? And that delay compounds over time, which causes them to all be slightly off from each other," Mary said.

"That's a possible solution," Paul said, flicking his finger clean. "But, we've got adjacent clocks that are running off in different directions, one fast, one slow. If physical proximity were the cause, they should both at least be off in the same direction."

"Well, I don't see you two offering any possible alternatives," Mary said. She looked at them, each one reacted under her gaze. Peter shrugged and shifted through his papers; Paul smiled back at her.

"That's true," Peter said. "But, like I said, I've thrown everything else I can at the wall. Nothing is sticking."

Paul took a drink of water, burped, and reclined in his chair. "The other possibility is that Puff is over-extended. Maybe we need to reboot him? You know, maybe something like a memory leak or variables being stored and not cleared."

"Rebooting him takes a lot of time," Peter said. "Not only that, if I'm right with my theory, that leaves us dangerously open."

“I don’t like your saboteur theory,” Mary said. “It would mean that the Pioneer Program had somehow missed something huge.”

“I’d rather we miss one big thing than all the little things we’d have to have missed for there not to be a saboteur,” Peter said. “Think, this just means someone beat the screening process. Every other possibility means we, as a crew, have been making a series of fundamental errors.”

“Let’s at least try rebooting Puff first,” Mary said. “Let’s keep the separate security scans running. We can pull a report of who is trying to access what while Puff is down. That’ll give us some idea if anyone is trying to take advantage of the moment; that might give us the identity of the saboteur, if there is one.”

“Risky, if the saboteur just wants to blow us all to Kingdom Come. Risky decisions sound like the sort of decisions the captain should make,” Paul said. Peter nodded, and after a moment, Mary agreed.

“He wanted us to call him as soon as we had a path forward, I’m going to take him at his word and get in touch right now.”

“It’s three in the morning Peter.”

“I know. This’ll let us see how serious he’s taking this whole thing.”

The only response Peter got to his call was “Good. Give me a minute to put on pants, then come right over.” Peter took that as a good sign; he was taking it very seriously.

Sometimes, Dr. Chen hated that woman. Sylvia had barged into his lab with accusations that their work had been sloppy. He was sure that Pallas would take his side in their little spat; the hard sciences always received more respect in the private sector than the softer ones. If he said his brain scans, polygraphs and other tests had cleared the entire crew of the Drake, then the entire crew of the Drake was clear.

Then some stupid ensign had to up and die. He didn’t know the details, but it was all over the news. Pallas’s face out there saying that a full inquiry was underway. There had even been stills of the first funeral in space during the New Space Age. Jeremy Redmountain or Redfountain, whatever his name had been, had died at an extremely inconvenient time.

When Sylvia had come back, with a memo signed by the Board instructing Dr. Chen to do whatever she asked, he was incensed. He knew what the memo meant: “You’re on notice. We need a scapegoat. You’d make a good scapegoat.” You know who’d make an even better scapegoat, Chen wanted to ask them. Dr. Setin. No one likes him; let’s blame him and sweep this under the rug.

He knew that wouldn’t have worked though. Setin hadn’t been in charge of ensuring the physical well-being or mental stability of the crew. Chen’s team was a part of that effort. Now that they were in

space, there really wasn't much that Chen could do that any other neuroscientist couldn't. But, that woman had still came by to rub his nose in it.

"Hector says I get your full cooperation in this matter," She had said as she collected the folders and flashdrives with the brain scan and polygraph data. "Did you take any specific notes about loyalties or possible red flag behaviors?"

"We weren't told to take notes like that."

"Next time, I'm sure, you'll show some initiative then, Dr. Chen."

He winced and conceded that yes, he would indeed do that. Thank you so much for the suggestion.

"One more thing before I go," Sylvia said, half-turning in the doorway to look over her shoulder at him. He waited stoically for her last question. "Is it possible to beat your screening process?"

"What do you mean?"

"Well, let's say there is a saboteur, like in some of our more paranoid crisis scenarios," Sylvia said, now leaning against the door, getting comfortable. "Let's further stipulate that you didn't do shoddy work--"

"That's a given."

She waved him off. "Fine, as a given, let's take it you didn't do shoddy work. Could someone familiar with the screening process have beaten it?"

"It's not like a true-false test," Chen said. "There are control questions and benchmarks."

"Well, I thought a polygraph was just a true-false test."

"That's oversimplifying the concept," Chen said. "There are ways to theoretically beat any individual part of the battery of tests we used to screen applicants. You could fake character witnesses, find a way to manipulate your physical responses during the polygraph, so-on, so-forth. But to beat *all* of the tests is statistically impossible."

"But, there is a chance?"

"On a theoretical level, yes."

"Thank you," Sylvia said. "We'll be in touch. Thank you for your full cooperation."

Helmsley sat alone, waiting at the cafeteria after another boring day on the bridge. Elizabeth had been there with him, and he had tried to get her talking. She was singularly focused on her duties though. Redmount's death had hit some of the crew harder than others, and despite not even being on the Drake when he died, Elizabeth had withdrawn into her work. It was a shame, Bill thought, because she was fun to talk to and made the time on the bridge fly by.

He had been waiting for a few minutes when Leona came in, waved and sat across from him. She was run ragged, he realized. She looked exhausted; her eyes had dark circles. Her hair was flat, and her shoulders seemed to be drooping.

"Get yourself some coffee," Bill said. "I'll still be here when you get back."

"I don't want any coffee," she said, folding her arms on the table and putting her head down. "If you don't mind, I'm going to go back to my dorm and get some sleep. Dr. Rutherford says I'm doing too much."

"What you need to do is just relax. Here, let me walk you back to your place."

"That's very sweet of you, but I don't think I need an escort."

"Are you sure? I hear the Drake has some mean streets."

"Very funny, Bill. I'll call you once I'm up to talk to people again," Leona said as she pushed herself up from the table and walked back out the door.

He powered on his smartphone and flipped through his contacts list. It wasn't unusual for him to get blown off like that, and really, it wasn't that big of a deal if it was on good terms. Everyone was working hard, and sometimes you just missed an opportunity. He hadn't known Jeremy; he'd never really been by the agriculture farms or botany labs. Bill wasn't one to really feel the need to commune with nature; maybe when he was younger it could have appealed to him. But, if the mysteries of space bored him, there wasn't really much to find entertaining in conifers and rose buds.

He was still enjoying his coffee when a pair of shuttle pilots came in. He recognized Ivan immediately; the thin, wiry, African-American frame stood out among the pilots. The other one with him was more what Bill thought of. He had an all-American jaw, was well-built, and gave off the same confident vibes that fly boys had been giving off for over a century.

"Hey," Bill waved to the two of them. "It's lonely over here, come on over."

Ivan and his companion pulled up next to Bill, shaking hands in turn. "Hey lieutenant, you know my buddy Red here?"

"Haven't had the pleasure, and no need for formality. It's pretty much all a cock of bull anyway."

Red seemed pleased with that. “I was just shooting the shit with Ivan here about our last little outing.”

“Oh, you were the shuttle pilot to the Ride, then?”

“He sure was,” Ivan said. “Took us a hell of a time to figure out what Puff screwed up.”

“Elizabeth told me all about it,” Bill said, hoping to spare him the pain of having to pretend to be interested in the story again.

“Point is, we’re going over to the Tereshkova to pick up the second shipment today,” Ivan said. “We got delayed because of the incident.”

Some people liked to be direct about tragedy, Bill had learned over the last few days. Some withdrew, and some tried to talk around it like it was an angry lioness, just waiting to reach out and maul its next victim.

“Yeah, a lot of things are off-schedule,” Bill said.

“That’s the beauty of being in space, people really can’t care too much about being off-schedule. After all: You’re in fucking space. Shit happens,” Red said.

“Trust me, suits are suits wherever you go,” Ivan said. “They want results. We’re probably going to have to work through Christmas to get back on schedule.”

At that moment, they each felt their smartphones vibrate; Bill excused himself to pull it back out and take a look. He groaned out loud.

“Gentlemen, your trip has just been pushed off another day,” he said, showing them the phone. It was an all-hand’s message from the captain instructing all employees to back up and save their work. Puff would be going down for maintenance in the next hour.

“So, how long does that take?”

“In the simulations, it took a few hours,” Red said. “We could still launch today. It’s not like it’ll get that much darker out.”

“Wait, in the simulations,” Ivan asked. “You mean, we’ve never tested this?”

Bill thought about the question; he tried to recall all the various systems and subsystem testing. “We did it in dry dock a few times.”

“Oh, ok,” Ivan said. “You had me worried for a minute there.”

Hector had been smoking real cigarettes since Harvey Amin and Dr. Youssef Sojaei had left his office three days ago. They had said that Northern America Shale and Gas would only compensate them about sixty percent of what they were asking for. The lawyer fees to fight for the other forty percent could get fairly steep, and worst of all, a jury might not even think sixty percent was reasonable. The numbers they had been asking for were "astronomical," according to Amin.

Hector had appreciated the attempt to ease the tension.

The Board wanted to fight for the last forty percent, and include lawyers fees in the list of damages. Hector had tried to persuade them to not gamble on that; after all, losing the case meant they'd have to eat both sets of legal costs. "And, we're not even guaranteed the sixty percent."

He preferred these sorts of simple business problems; how much money does Elvis need to build his giant playpen? How much money should Dr. Setin have to beam friendly looking zeros and ones into space? These were easy cost/benefit analyses with cold, hard dollars on the line. Even the more complex, ethical questions, were appealing, in an economic sense, such as: "Is the privacy of Dr. Chen's patients more important than the need to analyze the crew for possible hostile infiltration?"

It was possible to recast almost every moral question into an economic one. That had got Hector through his dating life to land him with a wife that was equally utilitarian. But, she had also helped to temper that cold ruthlessness pulling out the softer side of Hector that he normally hid with his theatrical stunts.When the Board of Directors suggested scrapping the mission until more was known about the Columbus' engine trouble and the glitches happening aboard the Drake, Hector had tried to reframe the question away from the squishy moral issues.

It wasn't that he didn't care about his crew; he did. It was just that recalling these missions would doom the Pioneer Program. Billions of dollars, thousands (probably hundreds of thousands) of man-hours, all of it would be gone. Louisa Grey, one of the board, had said: "That's all a sunk cost. Don't throw good money after bad."

"The money's still good," Hector had said. "Even Lewis and Clark lost someone on their exploration."

"He died from appendicitis. He was going to die no matter where he was," Grey said. "He didn't die because Lewis gave him poison."

"The crew is looking into the issue with the medicinal supplies and drawing up a new list of what they have there," Hector said. "There are billions of moving parts, literally and figuratively, involved with this mission. Accidents and mistakes happen; that's why we have insurance and the crew signed waivers and received the best training money could buy."

Louisa called for a vote, then and there, to recall the mission. Hector countered by saying such a move would be premature until more evidence was available; the board agreed to reconvene in a week. After

all, it wasn't like either of their floundering flagships was going anywhere any time soon.

"What about the Amundsen?"

"It should be able to start passage as early as tomorrow," the science advisor to the board said.

"I think we should wait on that," Hector said, to Louisa's apparent surprise. "The Drake has the more experienced crew and is equipped better to handle the initial passage. The original mission plan called for it to drop some beacons and mark the smaller asteroid families that the Tereshkova and Ride's shuttles couldn't safely reach. Sending in the Amundsen first could be disastrous. Not only that, to save on weight, the Amundsen doesn't have the additional beacons, so the Drake's crossing would only be negligibly safer, mattering on how much longer until it is ready to keep moving forward. There's not much to gain, a few days time on a mission that we have scheduled to last three years, compared to utter disaster. I urge the board to stick to the milestones, and ignore the projected dates associated with the milestones."

"Mr. Pallas has very rarely ever recommended restraint," Louisa said. "I'm not familiar with the mission plan, but if he says we should stick to it, I say we stick to it."

Several of the other board members agreed, and the vote passed unanimously. For now, then, caution was their watchword.

"One more thing, before I go," Hector said, pulling Elvis Quinton's proposal from his briefcase. "Our fundraising chair asked me to pitch this proposal, but the emergency on the Drake forced me to postpone briefing you all on it. You should have received copies earlier today. Now, if you'll turn to page five, there's a price breakdown."

Hector hated the sales pitch, but it was a better to end on something minor and inconsequential. And, frankly, Hector thought as he looked at the artist's rendering of Elvis's giant playpen, as he had started calling it, nothing could be more inconsequential. He was floored when the board unanimously, besides him, thought it was a brilliant idea and appropriated the funding.

Loman was in the gym when he received the all-hand's message. It didn't seem to him that big of a deal, so he put it out of his mind. After finishing his run, he hopped off the treadmill and went to the showers. He hoped that after the reboot, his access card would work, but he didn't hold out too much hope. They had tried replacing his card with another, but it quickly appeared the card wasn't where the fault was. Somewhere, in the labyrinth of code and applications, Gregor Loman didn't exist.

Which is why Lieutenant Chardon was waiting at the gym's exit to scan her card and let him out. The gym was one of the many sections of the ship that had not been built with manually operated doors. A huge oversight that no one had realized until the first day in space when Loman's card would not let him in. They'd quickly found a variety of other areas Loman couldn't access, and it infuriated him that the

engineers and designers had made such a huge mistake.

“What happens if we lose power?”

“The doors can be pried open,” one engineer had told him, hoping to mollify his anger.

“What if someone has lost their badge?”

“That’s a security violation that needs to be reported anyway so we can deactivate it,” had been their response. Each one made him angrier.

He came out of the gym in his uniform and nodded to Elizabeth. “I’ll be reporting to the bridge now. You can go back about your business, thank you lieutenant.”

“I’ll be reporting back to the bridge as well,” she said. “After all, I don’t want to leave the comms in Puff’s hands for too long.”

Gregor nodded and walked alongside her, in silence as he preferred. She had become a sort of silent companion to him when he needed to access different parts of the ship. People recognized her voice, but she was cold and standoffish at times. She served as an excellent counterbalance to his warmer persona.

“How are you enjoying our little voyage so far, lieutenant?”

“It isn’t quite how I imagined it would be.”

Gregor walked another minute or so in silence. That had been true; he had images of space-faring adventures drilled into his head as a young kid. Star Trek, Star Wars, The Last Starfighter. All of them making a simple promise: You get to space, you’ll have fun. Well, now that he was in space, the fun seemed to still be waiting to be delivered.

Redmount’s death had been a slap in the face to the crew’s collective space dreams. Gregor had noticed he wasn’t the only one whose mood had shifted to a stoic somberness. The jokes across the radio had become subdued, and even the shuttle pilots had stopped their incessant radio chatter. The gym had been nearly empty, and the stations were being manned with extra hands in preparation for the reboot. All of this added up to Loman wanting something that could bring things back the way it was.

“Have you noticed anything wrong with the crew, lieutenant?”

“Nothing out of the ordinary, given the circumstances,” Elizabeth said in her voice, the normal lilting sing-songness gone.

“Think it just needs to run its course?”

“I’d rather not speculate,” she said. “It isn’t my area of expertise.”

Loman liked that about this lieutenant. Unlike Helmsley and some of the other bridge officers who felt their opinions were both well-informed and important, Elizabeth knew her limits. As they approached the bridge, he gave her a quick aside glance.

“I think that it does,” Loman said as they got into the lift. “We’re kind of like children out here, I think.”

“What do you mean, sir?”

“We had this feeling, this invincibleness about us. It was bound to be shattered, like when a kid’s grandparents start to die,” he said. “You remember that feeling?”

She just nodded, so he continued, “Now, we realize this is serious. Oh, sure, we all went through the trainings. The simulations that ended with half the crew dead or blasted out an airlock, but then it never happened.”

“I don’t think it is like that all, if I can speak freely sir.”

“Go on.”

“We’re all adults here; we knew it was very likely there’d be an emergency at some point,” Elizabeth said. “What has the crew on edge is the nature of it. It was an accident; a freak accident that none of our training prepared us for. We did everything right, and it still went wrong.”

“That’s how it is in the real world though,” Loman said as they started to make their way down the hall to the bridge. The captain had told him, in confidence, that it was good they got this shock out of the system now, while they were still close enough to turn back if it looked like the crew, collectively, might lose their nerve. Once they were through the belt, turning around would be dangerous. Now? Now if they decided to tuck tail and run it was only expensive, not potentially lethal.

“I think we may have put too much faith in our training,” she said. “We saw it as a panacea. It’s really not, though, is it?”

“No, it isn’t. Sometimes the right decision still fails you,” Loman said. “Let’s finish this discussion some other time, lieutenant.”

Elizabeth nodded as she swiped Loman into the bridge; he entered first and took his seat with the captain. The captain was looking haggard, but he still kept his hands folded in his lap as primly as he could. The various screens and reports whizzed by him, sometimes being paused by a quick tap for further review. Elizabeth took her seat from the officer who was there before, and they went through the complex log out/log in procedure to give her access to the console. Even without it, she could still access the basic features, but this ensured that Puff knew who was at the station at any given moment.

“Is everyone ready? Good,” the captain said. “We’ll begin the reboot in twenty minutes; it should take us ten minutes to make a complete scan of the vessel before that. I want every system checked thoroughly. If anything looks off, we abort the reboot until the situation is normal. Any questions? Good, then get the diagnostics running and call in to your people distributed at other ship stations to get visual and manual readings.”

He then leaned back in the captain’s chair, watching as the Drake’s sensors came to life.

Dr. Ramona Cortez was, perhaps, the most unhappy member of the Pioneer Program at the moment. She was seated in front of Hector Pallas’s office, twitching nervously in her chair. She was in her late thirties and getting married next month, everything had fallen into place. She was finally going to get to have it all.

Then, somehow, her team’s genetic modifications to the various foodstuffs and medicines aboard the Drake had been left out of the computer systems database. (Apparently, she’d been briefed by her assistant, they’d taken to calling the computer Puff. Bully for them.) As the head of the Pioneer Program’s bioengineering and agriculture divisions (or, what Hector dismissively called, “the farm”), she was responsible for the screw up.

And, honestly, she might have been. She couldn’t be sure. She had searched for some record of forwarding the database update to the Drake’s systems, but the update would have gone out more than two months ago. The Pioneer Program’s groups automatic archive features should have captured that email, but she couldn’t find it.

So, now, she was sitting here, confident she was about to lose her job. She felt a little dirty, worrying about her job and her wedding, while someone was dead. “I am not that shallow,” she had told herself in the bathroom mirror before she came up to Pallas’s office. She tried to remember the dead man’s name, but it never came. She tried to convince herself that was natural.

Big companies lost people all the time, sometimes to accidents, sometimes to negligence. It was the price of doing business, that’s what her fiance had told her. It didn’t make it easier, but so long as he was in her corner, she felt that she could hold it together.

“Mr. Pallas will see you now,” the too young, hired for her looks secretary said. Ramona thanked her politely. “He also apologizes for making you wait. He says you’d understand that he has unexpected things on his plate recently.”

Cortez winced when she heard that. That was the sort of passive aggressive bullshit she’d pull on a subordinate who had disappointed her. It stung to have it thrown in her face, and she resolved to be a bit less bitchy in dealing with her people. She also made a note not to call what Pallas did bitchy. Even if that

was exactly what it was.

“You wanted to see me?”

“Sit down,” he said, pointing to the chair across from him with a lit cigarette.

“I thought you had quit.”

“You’re not sitting down,” he said. Once she was sat down, he stood up and walked to the window, puffing away. She realized it was pointless to mention the building was, nominally, designated as non smoking.

“We’re still reviewing how the Drake’s databases did not get updated with our most recent dump.”

“We’re being sued,” Pallas said. “Lots of money. Both Mrs. Redmounts -- the mother and the wife, not two wives, just to clarify for you -- are kind of upset. That makes me upset. It should make you upset.”

Ramona nodded. She was very upset, but she wasn’t sure why.

“You’re going to be deposed by our lawyers and their lawyers, tomorrow, at eight o’clock sharp,” Pallas said. “You will vet your testimony through myself by the end of today.”

“That’s only a few hours.”

“Then stay late,” Pallas said, flicking his cigarette out the window. “God knows I am, and my incompetence didn’t kill anyone. Now get out of here and get to work. I want to know how your department screwed up and who we need to get rid of, besides yourself.”

“I filled out all the paperwork; I have the approval from the Drake’s programmers that they’d received my requests to update the database.”

“Put it in your testimony,” Pallas said. “But, frankly, I don’t care. Someone screwed up in your shop. Firing some line worker or high-tech farmhand isn’t going to appease the public. I’ll be here all night. I expect to see a draft, soon. Dismissed.”

Ramona stormed out of the office, insisting in her head: “It wasn’t my fault.”

Emma Winston had finally been allowed back into her dorm. She had been given a letter of commendation from the captain for her quick thinking; she had also been provided a letter of merit from the home office for being wounded in the line of duty. Her private desk was relatively empty, so she quickly adorned them with these keepsakes.

Being let out of the medical bay had done wonders for her mood, especially getting away from the constant reminders that someone had died not that far from where she had been. She knew it was irrational, but she felt that just being near the spot where Jeremy Redmount had died might infect her with some germs of fate. She had walked as briskly as she could away once she had been released. Her dorm mate, Melissa Farn, had been home when she arrived and helped her to unpack.

“Welcome home, Emma. I’ve kept your plant alive.”

“Thanks Melissa. I knew you could do it.”

“My master’s in botany isn’t going to waste here.”

“Did you know Jeremy Redmount?”

Melissa nodded. “He was a nice guy. I think he had some family back on Earth.”

The phrase caught Emma off guard. While she had been in the medical bay, she never really had thought about Earth that way. The brief period they had been in space, resupplying with metals and other heavy materials that would have increased the cost of the launch from the Tereshkova and the Rise, and reacting to the emergency with Redmount, she hadn’t felt that disconnected from Earth. Her daily routine, though, for most of that time had involved daily updates from home, and daily messages and calls letting them know she was fine.

The sheer disconnect of distance hadn’t really hit her yet. “What about you? You have anyone back on Earth.”

“Just my parents and kid brother,” Melissa said. “And my cat.”

Emma had given up her dog before joining the crew. It had been the most painful parting, because she knew her parents could figure out how to write her. But old Wrigley would never be able to connect with her in the same way through a screen. She doubted that he’d even recognize her little gray scale face trying to wave at him. Would her distorted voice even be recognizable? Poor Wrigley, she thought. She hoped that her neighbors were being good to him.

“When do you report for duty next?”

Emma checked the calendar on her smartphone. “Bright and early tomorrow. The flight tower must be giddy to have a full roster again.”

“They still haven’t gotten the conveyor belt fixed,” Melissa said. “Ivan pointed it out to me when he took me to inspect the Ride’s upcoming crop. Some sort of aphid somehow got aboard.”

“You didn’t bring any back with you, did you?”

“Only the ones I hid in your bed.”

“You’re the worst roommate ever,” Emma said, glad to be back.

Elvis Quinton knew that the Pioneer Program’s office building usually shut down by, at the latest, seven o’clock. The last few nights, though, his usual leaving time of eight wasn’t that big of a deal. In fact, he felt that he was being judged for not taking the crisis as seriously as he should have been. He didn’t get why; nothing he said or did was going to help with the crisis response. Besides, he wasn’t going to make any headway with any new donors until the whole accidental death issue was resolved.

No one seemed to want to invest or donate to a company that was in the crosshairs for a wrongful death suit. Elvis couldn’t blame them; if he didn’t work here, he’d pretty much be running full speed away from any space ventures for the foreseeable future. So, he punched out at eight o’clock on the dot, putting in his thirteen hours for the day. The security guard signed him out, and he plugged his destination into his car. He clicked over the automated navigation and settled back.

The time slipped by before he was at his favorite spot for dinner. It was a small greasy spoon about fifteen miles from headquarters, and he liked it because it was discrete. He had brought some of his office flings here, some of the women from the neighborhood, and now, he was bringing the very large donor here to hash out some details.

“Mr. Kingston, a pleasure,” Elvis said, shaking the big, fat man’s hand. After idle pleasantries, they took a seat at a back booth, something that made Quinton feel like they were doing something dirty.

“Quinton, awful business on the Drake, I hear,” Kingston said, shaking his head and wiping down his glasses. “I trust this won’t get in the way of my boy’s birthday party?”

“The money is obligated, so I don’t think it should get in the way.”

“Excellent, excellent,” the man said. “Not to say I don’t feel for the poor lad, but, well, we shouldn’t let it get in the way of business.”

“No, not at all,” Quinton said, as the waiter took their order. Inside, he felt a twinge of disappointment. There was a waitress whose eye he was trying to catch, and he thought tonight was a night she worked. He’d have to come back tomorrow.

“And the building is entirely on schedule?”

“Entirely, sir.”

“How much of a replica is it?”

“The shell is the same, though obviously without any of the tech. Think of it like the set for a movie,” Quinton said, pulling out his tablet and placing it between the two of them. He clicked through some of the concept drawings. “We’re going to replace the bridge consoles with tablets that will run a variation on some of the training simulation, a sort of bridge command game for the kids.”

“They’ll like that,” Kingston said, tapping away at the tablet to see different angles. “My boy wants to be an astronaut, well, he says a ‘space captain,’ but you can infer what he means.”

Quinton laughed at this, and let Kingston play with the tablet some more. Once Kingston was done, he slid the tablet back. The two talked about Kingston’s boy until the food came. He was also a baseball player, but he wasn’t very good. “He’ll grow into it, I sure did,” Elvis said, but Kingston just shook his head.

“He doesn’t have the genes for it,” he said as he popped a french fry into his mouth. “Now then, let’s get to the business?”

“Here’s what we think an appropriate donation would be; it includes a rental fee for the day,” Elvis said, pulling the contract from his briefcase.

Kingston raised an eyebrow. “I see, I see. Send that to my accountant to take care of those niggling details. I meant more, how do I get my foot in the door? Space travel, you know that is going to be the next major pleasure business.”

“That sounds like more of a business venture, I really can’t speak to that.”

“Ah, well, how about this, then? What would it take to get you to come and join my firm? We’re still working on building a staff, but we’re learning from watching the Pioneers,” Kingston said. “Frankly, we can do better.”

“Our technology is decades ahead of anything anyone else has,” Quinton said, suddenly defensive. “I don’t mean to be rude, but I think this conversation has gotten off the rails.”

“No matter, no matter,” Kingston said, replacing his glasses. “Forget I said anything. Tell me more about this bridge game.”

Captain Theo Smith watched as his bridge crew finished the final calibrations and security checks before they shut Puff down. In a way, the captain liked this sense of purpose and troubleshooting. He had hated the constant reports of minor failures, minor inconsistencies throughout the Drake. It had felt like it was

slowly spinning out of his control. Where the Titanic had hit an iceberg, he felt like the Drake was being smashed against various small ice floes, just waiting for one to tear a hole in the hull.

When the three amigos, as he had taken to calling Peter, Paul and Mary, came to him with this suggestion, he'd initially been receptive. The reboot procedures had gone seamlessly in drydock. They'd shut off Puff's systems in sequence without any issues. They had explained to him the phased system shutdown.

"First, Puff segregates the redundant systems and reboots those. These are the systems that we don't really need and wouldn't notice missing," Peter had said. "So, data storage, mirrors of the various work consoles that we keep ready to repopulate in case one crashes, things like that. Once those are down, we use that space to create backups of essential systems."

"These are what we call the S-class systems," Mary said. "Primarily, this is life support and the necessary power and subsystems to conduct an emergency evacuation, things like that. Things that we absolutely need to live."

"A-class systems are the next that we roll back. These are the ones that make life livable in relative comfort," Paul said. "Gravity systems, climate control, more than basic emergency lighting. Once we've got these rebooted, we then shut down their mirror systems and reboot those. At every point in the reboot process, the standard, redundant mirrored version of the system should be running, ready to step in the moment that part of Puff reboots."

"As a final fail safe," Peter said, "we also have empty places on Puff that we create a mirror of each system as we roll through the reboot. So, even if the standard mirror fails us, we have the temporary ghost mirror that can pick up the slack. This creates durable redundancies. We should be able to reboot the system without anyone noticing a thing."

"Just like in drydock?"

"Yes, captain. It went perfectly smoothly there, I see no reason it won't here as well."

The captain had tried to see any flaws in the plan, but he honestly didn't see any. Even if he had, the three amigos were right. They had done dry runs, dry runs that had worked flawlessly. "Alright, reboot the magic dragon," the captain said. Peter entered the command.

Security at the Pioneer Program was, in some ways, extremely tight. There were tokens and guards; the doors were locked routinely. People were conditioned not to allow others to slide behind them through the doors. The guards stopped everyone on their way in, even Hector Pallas had to show his identification in the morning when he came in.

In other ways, though, security was extremely lax. Ryan Orn, the head of security at the Pioneer

Program's home office, had tried to explain it to Hector during one of his briefs. Ryan said that the security was "like a donut. We've got a protective ring, but once you get to the center, there's nothing really there."

"So, you want us to be more like a jelly donut? Or a bear claw?"

Bear claws were not, technically, donuts, according to the security officer on duty who had sat in on the meeting. Paula Nichols was a veteran of the police force, but she had been more than happy to get a desk job, especially a high paying one at a futuristic technology firm that would make every other officer jealous. She had been offered a position on the Amundsen as a security specialist but decided that she liked her feet firmly planted on the Earth.

Judging by the public reports of problems with the Columbus and Drake, that was the right choice. So, now she sat at the desk on the ground floor, with her feet propped up, a mug of steaming coffee cupped between her hands, and the clock slowly ticking down until it was time for her to do rounds again. The intercom buzzed, and she was a flurry of movement to get her feet on the ground as she clicked to respond.

"Nichols here, the front desk is secured."

"Just checking in," came Orn's familiar Minnesota nice accent. "I noticed a lot of the top brass hadn't signed out yet, so I wanted to just make sure we had eyes on the front in case they wandered by."

"I'm here, boss. Don't worry."

"I'll do the next set of rounds," Orn said. "I'm going to dip out before that though. Want anything fresh?"

"No thanks, boss," she said. The connection was cut, and she returned to her laid back posture. She was still sitting that way when she heard a scream from outside the front door. She pulled herself to her feet and leaped over the desk from a standing position. The scream had been shrill, a woman's, she thought. The door pushed open easily from the inside, despite being locked.

In front of the building were several people out and about their business as night spread across the sky. Nichols quickly scanned the crowd, and followed everyone's eyes. There, on the right hand side of the entrance to the building was a crumpled body. Nichols waved everyone back and radioed for Orn, as she ran toward the figure.

As she got closer, she was able to get a clearer picture. Blood had pooled under the body, the limbs were smashed and smeared. The skull had been split open. The woman was dressed professionally, and Nichols had no doubt that she was one of the Pioneer Program's people. As she approached the body, she heard glass crunch under her boots.

Turning her attention to the ground, she saw the tinted glass had been scattered farther than the body, and

she quickly scanned up the building. She found the broken window, about eighteen stories up. She radioed to Orn to get someone else to walk that floor, and then knelt by the body. She gently reached around the woman's neck and pulled out her identification badge.

"Orn, our jumper was Dr. Ramona Cortez," she said into her radio. "She's definitely dead."

"Don't touch anything else. I'm coming. Keep anyone else away from the body."

"Got it, boss," Nichols said, but the people on the street instinctively stayed away from the body. Nichols let the identification badge drop back to the street and stepped away from the body. She pointed to the nearest pedestrian:

"Anyone here call 911 yet? No? You, get on your phone. You there, miss, did you see what happened?"

"No; I just heard a window break. I heard some screaming, that's when I heard her hit the ground."

"Alright, please, everyone stay further back," Nichols said. She resisted the urge to say there was nothing to see here, because she knew that there was. Suicides were morbid, but like any loss of human life, rubberneckers tended to come to watch. She heard an ambulance's siren whistling towards the building.

She tried to keep her mind clear and was relieved when she saw Orn come out of the building with two other security officers. They made quick introductions, but Nichols didn't bother committing their names to memory. Orn had Nichols and one of them start putting up crime scene tape; he sent the other to try and collect statements from the crowd.

"Once the police get here, our hands are going to get tied, fast," Orn said. "So, get me facts, I need them yesterday. Nichols, I've got a man on the eighteenth floor securing her office, I want you to head up there once the scene is secure."

"I'm on it boss."

Bill Helmsley felt a familiar up in his stomach in the middle of his run on the treadmill. It took him a moment to recall where he had felt it before, and that moment was all it really took for the rest of his body to actually figure it out before his brain did. The body was, he would explain to Leona later, amazingly good at remembering sensations better than the mind. When he was a kid, he remembered that they did drills to prepare for baseball. The coach would throw or hit ground balls to you hundreds of times, it seemed.

"Muscle memory," the coach had told them. "The less you have to think, the less your brain gets in the way. Thinking too much about simple things makes you stupid, boys."

So, while his brain was trying to figure out what his stomach and innards were trying to tell him, while his feet started to pinwheel, his arms instinctively pushed him away from the exercise equipment. His eyes watched in fascination as the treadmill seemed to pop up an inch, before being caught by the restraints that held it firmly in place.

The free weights in the next room however, he realized, were going to be a different matter. They were supposed to be strapped back into position after being used, but Bill knew that no one ever really did that. Instead, whatever nurse, doctor or health specialist that closed the gym for the night handled it. He heard the surprised swearing of a man in there, and that's when Bill's body finally recognized the sudden feeling of weightlessness. It was a liberating feeling, but it was also a distressing feeling.

He pulled out his smartphone and tried to get through to engineering, but he had no luck. As he was floating there, in the middle of the gym, he realized that he needed to anchor himself somewhere. He had just come to that realization when his stomach started to sink. He felt the air whoosh past him, and he heard the restrained gym equipment settling down; he heard cries of pain as various weights in the next room started falling to the ground.

The next sound he heard was a snap as his own ankle hit the ground. He tried to keep his balance, but he pitched over, smacking his head against the wall. He wasn't sure how much time passed between then and when he woke up in the medical bay. Probably only half an hour or an hour, he thought, judging by the fresh pain in his ankle and skull. Leona was the nurse on duty, and she greeted him with a smile when he finally looked at her.

"Try not to move right away, lieutenant," she said in a cheerful tone. "You're not all that bad off, but the doctors still wanted to look in on you when you woke up."

She called for them, and he sat through their battery of questions. No, not nauseous. Yes, he remembered his name and where he was. All of the basic and simple questions he answered just fine. They told him it would probably be a few weeks before his ankle would fully heal.

"So, what happened, exactly, Leo?" Bill asked her after they were alone again.

"I'm not really sure. I was on my way here for my shift when everything started flying around."

"It probably had to do with the reboot," Bill said, sitting up in bed to look at his ankle. It was twisted in a rather unique way, and he wasn't optimistic about walking on it any time soon.

"Maybe."

"Was anyone else hurt?"

"There was another man in the gym who was hurt pretty bad. A few other people with some bumps and bruises."

Bill could sense she was holding something back, and he debated in his head the best way to go about pulling that information out from her. Normally, he preferred the direct approach, so he just asked, “Was I the worst of it?”

“No,” Leona said. There was a silence in the air, he looked at her and nodded, silently imploring her to go on. “One of the mechanics was working under a shuttle. By the time we got there, she was already dead. The man in the weight room is probably crippled for life.”

In the back of Bill’s head, he hushed the voice that was telling him that a single casualty after a shipwide fiasco like that really wasn’t that bad. Instead he voiced his concern and asked if she was alright.

“Yes,” she said, returning to her fake cheerfulness. “I have to finish checking on the rest. Get better, Bill.”

He wished her well and settled back into the hospital bed. He checked his smartphone and sent a message to Ivan: “Well, good thing you weren’t worried.”

Sylvia Lewiston’s office was next door to Ramona’s. When the window had shattered, the old woman had simply looked up perturbed at the noise. She had stomped over to see what had happened, because her mind didn’t jump to the young, attractive, soon-to-be-married woman as the kind to throw herself out a window. She thought she might have thrown a chair, sure, Lewiston was telling the security guard who thought she was a police officer.

“But suicide? Never in a million years,” Lewiston said. “She wasn’t the sort for it. I would know; I’m a psychologist.”

The security officer nodded, as if appeasing a doddering old grandmother. “Do you remember seeing her when she came in?”

“I keep my door closed,” Lewiston said, which was true. Any distractions were unwelcome. “I think I heard her annoying heels clip-clopping down the hall.”

“When was that?”

“About twenty minutes before she jumped, I think,” Lewiston said. “I really don’t keep tabs on the annoying sounds that interrupt my work.”

The officer, though not a real officer, Lewiston reminded herself, read over her notes one more time. She underlined something and stuck the notepad into one of the many pockets on her utility belt. “No more questions; I’m sorry to have disturbed you.”

“Did she leave a suicide note? Or a report? She was supposed to file a report with Mr. Pallas.”

Lewiston knew that this was callous, potentially to the point of ghoulish. But, the Board needed to know what information Cortez had regarding the death of Jeremy Redmount. Investors were getting skittish, and if they bolted, then they might end up needing to recall the pioneer ships before they even made it across the asteroid fields. The delays up there were paramount in her thinking; clearing up exactly why her office neighbor decided to take a flying leap was not nearly as important.

“We haven’t found anything of the sort,” Nichols said. “The computer was powered off, so once someone from IT gets here with administrator access, we may find something.”

Lewiston sighed, she made a perfunctory remark about how it was such a waste of a young life, so-on, so-forth. Then she went back into her office and shut the door. She pulled through her files and tried to find if they had a predetermined response for this situation. Someone, probably Pallas, should call her husband and express the condolences of the Pioneer Program. “Should wait, though, until the police have broken the news. That seems a lot more proper,” Lewiston thought.

Lewiston was flipping through her files, her mind drifting from her work when her office phone rang. She picked it up without screening it, “Dr. Sylvia Lewiston, how can I help you?”

“Have you heard about the accident?” Sojaei’s voice was distinct, and he never bothered to introduce himself when he called.

“What Ramona did wasn’t an accident,” Lewiston said.

“Ramona? What happened to Ramona? I was talking about aboard the Drake.”

“She jumped out of her office,” Lewiston said. “I think the pressure finally got to her.”

Sojaei didn’t speak for about a minute; to fill the silence Lewiston drummed her fingers. Finally, he spoke, “I didn’t know. You need to come with me to see Mr. Pallas. There’s been an accident on the Drake; I just got an updated report from Dr. Rutherford. Two people are dead, about a dozen wounded. I’ll brief you on the details when I talk to Hector.”

Lewiston’s ears perked up at the news. This, she thought, was a crisis. “I’ll bring my plans.”

Dr. Rutherford left the bridge, feeling as though a huge burden had been taken off her shoulders. Reporting on the situation at the medical bay felt sort of like confessing to her priest. She had never really felt the absence of a religious teacher in life until she was in space. She had grown up in D.C., and she never felt the desire to go to the nation’s museums until she was gone. She thought it was the same way; now that the nearest confessor was literally more than a planet away, Abigail knew what she was missing.

And what she was missing was a rock. In her life she had always had a rock. Her sister; her mother. Her first real boyfriend, fresh out of college, until he decided that Europe was more important than her. Her second long term boyfriend until she decided that working for the Pioneer Program was more important than him. Her uncle who lived down the street at her first job; her mentor. Now, she was trying to be her staff's rock.

She had been in leadership positions before, but this was different. Then, the people coming under their care had been strangers, for the most part. Hospitals occasionally did treat members of their medical families, or extended families. But those were rare and heartwrenching. Aboard the Drake, everyone was family. Even the jerks, even the people you couldn't stand. Leona even seemed to have a soft spot for Lieutenant Helmsley.

Filling out death certificates had been part of her job for longer than she could really remember. The difference in the last three that she had to fill out is that she had not spent months (or maybe a year? Time blended for her right now.) working with them, training with them. It was part of the psychologists' plans to build a team. They were integral parts of each other's lives in a variety of ways. When Redmount had died, the ship had entered a collective mourning.

The next two -- a mechanic named Teresa Gains and a security officer, who seemed like he would pull through until a blood clot complicated his recovery, named Will Kane -- had spiraled the mood into depression. Abigail didn't know what to do about that, and so she had penciled herself some time with the ship's psychiatrist. She suddenly wished her initial staffing plan had called for more than one. She already wrote to the Pioneer Program to request additional Earth-based specialists for consulting.

But, Mark's physical proximity really gave him an edge over the rest. Mark Logan had studied with Abigail during their undergraduate days before their specialties had drifted them apart. He had made his way through the Navy; she had been in and out of clinics and large small in the private world.

He had been deployed across the world with units and, some people said in hushed tones, had also been a part of covert psych-ops. This mystery had given him that extra edge of authority that let even the more hardened of the crew to confide in him. Sometimes, she thought he had started the rumor himself to help his reputation.

"Mark, I'm glad you could find time for me."

"What are old friends for?" He said. Ever since he left the Navy, he had grown his hair thick and his beard rugged. He was one of the few blonde men that Rutherford had ever seen who could grow a beard, and he seemed proud of it. He rubbed it when he thought, when he looked out into space, when he listened to you. It was like a security blanket; it made him handsome and reassuring.

"I just need someone to talk to."

“That’s pretty much my job description,” Logan said, motioning for her to take a seat on the couch. He poured them both some coffee and sat in his arm chair across from her. “That and giving out some drugs.”

“I don’t need anything harder than caffeine, thank you.”

“Believe it or not, you need a license to give that out now-a-days,” Mark said. “But, you’re not here to listen to me talk about the over regulation of the medical industry.”

“Not particularly,” she said, sipping her coffee. “How is the rest of the crew holding up?”

“Don’t worry about them. Each person here was hand-picked for their skills. That’s physical, mental and emotional. We’ve got some of the toughest sons and daughters of bitches on the planet.”

“I’m worried about the stress though,” Rutherford said. “I mean, I’ve seen the other doctors. They’re not getting as much sleep as they should. The shifts are longer than they ought to be. The captain’s been pulling back on what we’re allowed to automate.”

“After today, that’s starting to look like the right call,” Mark said. He was as much of a Luddite as a man who volunteered to get shot into space could be.

She leaned back on the couch, watching the light in the ceiling. “Maybe. Just, if the crew is under this much pressure, what would happen in a major emergency?”

“I don’t have any literature to back me up on hand, though I’m sure it exists, but I think it is actually easier to buck up during an emergency,” Mark said. “Think: Right now, everyone is stewing around with nothing but the humdrum routine of the day to interrupt their thoughts of mortality. If you could inject something that shakes them up, gets them out of their rut, you can jumpstart the grief process.”

“What would you suggest?”

“I already sent my suggestion to the captain,” Logan said. “I’m not sure he’s going to like it.”

“Well, tell me about it,” Rutherford said. He did, and she agreed. The captain was not going to like it.

Lewiston liked Sojaei in her own way. The little man was often nervous, but he had a sharp mind. When you pulled him away from his oversized tinker toys and engines, he was just an awkward kid. He even had the size about right for a teen just getting used to his new gangly legs and arms. Sojaei had apparently been busy; Setin was already at Pallas’s office, drinking coffee and casually reading something on his smartphone.

Dr. Chen had met her on the elevator, and their exchange had been curt. He was normally talkative, but he

remained aloof and secretive. Sojaei paced the office, waiting as Pallas skimmed the bright red folder that he had been provided. Sojaei's hair was starting to thin and gray, and he had decided to not fight with nature on that front. When he took a seat by the window, Lewiston suddenly realized just how old he must feel, and she restrained a smirk, because she still wasn't feeling that old.

"I would have been here faster, but one of Orn's lackeys slowed me up."

"Sit down; Sojaei's got extra copies for everyone."

"You can have mine," Setin said, sliding a folder across the table. "I had the computer read it to me on my way back to the office."

Lewiston opened the coffee-stained folder. If he hadn't read it, why did he let it get dirty? Setin was an odd man. Nice, but distant. Queer was a word she'd use if it had not started to encompass a second meaning.

"Where's Elvis?"

"Not answering," Sojaei said. "I'd say let's wait, but he's not going to have much to add to this meeting."

Pallas looked up, puffed a cigarette (he was back to using real ones again, Lewiston noted. The stress must be overwhelming.) "I agree on that. Let me hear what went wrong."

"For some reason, the artificial gravity failed," Setin said.

"Ok, let me clarify. Give me the reason that something went wrong," Pallas said.

"I haven't received a report from the Drake with the details, so I can only speculate."

"I think I have a hypothesis," Sojaei said. Pallas pointed at him with cigarette, which he took to mean 'go on.' Lewiston closed the folder and watched as Setin shifted around his coffee. He went up to Pallas's desk and grabbed a container of paper clips, spilling them across the desk.

"Ok, so, we know how the reboot system works, right? It stores critical systems in one place, like a mirror, as it goes down rebooting each system individually," Sojaei said, as he lined up the paperclips. "Some systems are linked, we tried to keep them in tier systems, right? So, all the life support systems are here; all the critical, but not life-sustaining are here, so-on."

"None of the other systems came back with any problems," Setin said. "That's what the report says."

"Right, because when the lights were mirrored, they don't need a lot of power," Sojaei said. "Which means that it doesn't overburden the system to keep the juice going. Imagine like if we had an electric current going through each of these strings of paperclips."

“I’m not a fan of visuals,” Pallas said. “Especially ones that mess up my desk.”

“So, for the most part, each tier’s subsystems pull roughly the same amount of power, so there’s an equal distribution,” Sojaei said, wiping his sweating palms on his pants. “But, the artificial gravity? That’s a power drain.”

“Especially since we decided not to go with a spin system,” Lewiston said. “Which I remember was a point of contention in the initial designs.”

Everyone looked at her, then back at Sojaei, who just nodded. “What Dr. Lewiston says it right. So, imagine if one of these paperclips were much, much larger. Not just two or three times larger, but hundreds, maybe thousands, times larger.”

“When you rerouted the power, it would cause a hiccup,” Setin said. “But that still should have caused everything down the line to also error out.”

“That’s if you see the power as going from one end to the other,” Chen said. “But a lot of the systems have redundant and separate power systems. The farms, I know for one, have a separate power grid for emergencies.”

“Exactly,” Sojaei said. “Each system powers up and down on its own. It also provides a layer of insulation in case a system shorts, keeping it separate from the others until the engineers link it again. So, what happened is that the artificial gravity cut off instantly, but for some reason, wasn’t mirrored.”

“Which means it wouldn’t come on again until the section was finished rebooting,” Pallas said, closing the folder. “Ok, I get that. Why wasn’t it mirrored?”

“That I don’t know yet,” Sojaei said. “I’ve got my team looking through the test reboots we did before for any anomalies. Everything appears to have worked fine.”

Setin raised his hand. “Out of curiosity, about those tests, where were they done?”

Captain Theo Smith was receiving a similar briefing from the three amigos. Instead of paperclips, Peter had pulled up a mockup of the Drake’s electrical systems. He showed how each system switched over to the mirrored program during the reboot, then froze and zoomed in on the artificial gravity construct at the center of the Drake.

“We’ve already set it so that the artificial gravity does not reboot with the rest of Puff during a general system cleanse,” Mary said, as Peter pulled up the next slide. “We have a few theories on what happened, but it appears that the complexity involved with the artificial gravity required more memory space than

we had allotted for the mirrored partitions."

"And no one noticed this until now?" The captain's question had a hint of accusation.

"No one could have noticed," Paul said, rubbing his hands together. "We've only done a few test reboots, and we never needed to examine Puff's reports from them since everything has gone smoothly before."

"As a new practice, even if an operation goes off without a hitch, I want you to review anything the computer has to tell you," the captain said. "And I want the review done manually, thank you. No automatic bug reports or any other techno-mumbo jumbo. Manually check the read outs and report anything out of the ordinary."

"That can take hours with some routine operations."

"Draft some of your shipmates then," the captain said. "That's an order. I don't want us surprised like this again."

Gregor Loman had been watching the report from the captain's side. He had been following the more technical parts fairly easily, they had, after all, dumbed it down for the less tech savvy. "So, you mean to tell me we never noticed this glaring problem because when we did the previous reboots, we were still on Earth?"

"It's kind of embarrassing to say, but basically, yeah," Peter said. "Think about it. If Puff's artificial gravity conked out, the only way we'd know is if, well, there were no gravity."

The captain grinded his teeth. "I'm not going to like reporting this to the inquest. It makes us look like a bunch of idiots."

The three amigos took a quick stock of their situation in a series of furtive glances among each other. Loman clicked his pen a few times, then he scribbled a quick note, 'Order engineering team to review all artificial gravity protocols.' Once the silence became unbearable, he spoke up again: "Have you reviewed the rest of the diagnostics from the reboot?"

"Oh, yes sir," Peter said. "Everything else went off without a hitch."

"What about the result? Did it fix our problems?"

"No captain," Paul said. "Well, yes, I mean, the clocks are synched up again. We've received a bunch of data dumps from Earth that were held up in the pipeline for some reason. But, well, we don't know why any of that happened."

"I want reports every eight hours until you know what is going on with the system," the captain said. "I also want you to check the clocks before every report to ensure none of them are drifting."

The three gave a crisp, “Yes, sir,” and gathered their things. The captain turned his chair to confer with Loman privately. “Frankly, Loman, I think we should recommend we turn around and go home. I trust my instincts, and something about this voyage stinks.”

“I’d agree captain, but we’ve got a lot invested, in blood and money,” Loman said. “If we turn around, Redmount, Gains and Kane may have died for nothing.”

The captain folded his arms and reclined in his chair, dismissing Loman with a curt nod. As his first officer left, he couldn’t help but think, “If we keep going, then a lot more might die for even less.”

Charis Hillman had decided that leaving her hair down for her date with Harvey was a better idea. She thought men liked long hair, and hers certainly wasn’t long enough. She had taken a liking to the local bar; the owner had grown up near Cape Canaveral and was more than glad to attract what he considered the more intellectual crowd. That might be because he associated “more intellectual” with “people with more disposable income,” but the decor appealed to the Pioneer Program.

It had become the after hours place for the various teams, and Charis and Lisa had spent countless nights and hours here drinking wine of various sorts. Sometimes they’d talk about work, and sometimes they’d talk about their lives. Lisa had asked Charis to be her “wingwoman” for a few nights, and Charis had agreed readily. It had been a fun way to pass the evenings, but her heart had never really been in it.

Tonight, though, Lisa had gone home early to call her family, which meant that Charis could see Harvey alone, something that just didn’t happen often enough since the pioneer ships had blasted off. She nursed her wine and waited.

By the second glass of waiting, she was getting annoyed. By the third, she was angry. Then she took a shot of something the bartender suggested. She paid her bill and summoned a cab, storming out of the bar. She left a message for Harvey, which she would swear was a good idea when she left it but quickly became less of a good idea as she got more and more sober, and got home in time to eat dinner with Lisa. Dinner with Lisa always included a glass or two of wine.

The two of them commiserated, Lisa about her upset mother who wanted grandchildren yesterday and Charis over a guy who, yet again, forgot to call. “It’s like they don’t remember how to work a phone.”

“Except late at night when they’re lonely.”

“Screw’em.”

“That’s the booze talking Charis,” Lisa said. “You should probably drink some water.”

Lisa poured them some water and the two left the kitchen table and sat together on the couch. They were there, talking about the evils of men and the simplicity of the telephone [“You can even use speed dial!”] when Charis’s phone rang. She picked it up, fumbled with it, and Lisa deftly took the phone away to see who was calling.

“It’s Dr. Setin,” Lisa said. “You probably don’t want to answer just yet.”

“You do it,” Charis said, putting her head on her friend’s shoulder.

Lisa clicked on the phone and held it up to her opposite ear. “Hi; Charis left her phone here. Can I help you Dr. Setin?”

“Yeah. I need you both at the lab in an hour. There’s been an accident, I can’t talk more than now,” Setin said. “Did Charis say where she’d be?”

“No, but I’ll come straight away,” Lisa said. She hung up and looked at Charis, who was sleeping contently on her shoulder. She tucked her friend in with a blanket and slipped out the door.

Elizabeth felt comfortable being back in a shuttle. The pilot, a man who just called himself Red, was going through the routine pre-flight checklist. He barely acknowledged she existed, and in a way, she preferred this to the more chatty of the pilots. This mission to the Tereshkova was also one she didn’t really want to think too much about. Loman had briefed her on it as he walked her to the shuttlebay, well, more appropriately as she walked him there. He still didn’t have access, even after the reboot.

“A lot of equipment wasn’t properly secured,” he had said on their walk. “We’re going to scour parts from the Tereshkova and the Ride. I’m really sorry to send you back out that way, but since they already know you and you speak the language, it is an easy choice.”

“Don’t worry,” Elizabeth said. “The shuttle gives a better view of space than the bridge anyway.”

He hadn’t said another word about it; he had handwritten the list of equipment that was being delivered. She had translated it to what she called the port master at the Tereshkova, and Loman had insisted on them writing down the request instead of plugging it into the system. The captain’s distrust of their machines seemed to be infectious.

“Sir, the crew’s been uneasy since the accident.”

“Dr. Logan has been talking with captain,” Loman said. “That’s all I can really say.”

“There’ve been rumors, sir. About a possible saboteur,” Elizabeth had waited until they were in the lift to ensure there was no one else around.

“Those are just rumors. Mechanical and computer failures account for all the problems we’ve been having.”

“I know, sir,” Elizabeth said. Though she wasn’t sure; the oversights were possible. “But, things are going missing.”

“What sorts of things?”

“Drugs, other medical equipment,” Elizabeth said. “One of the nurses told me. Some of the electronic equipment that came in from the Ride is also unaccounted for.”

“The manifests for that were all fouled up,” Loman said as the elevator opened. “It just may not have been delivered. I’ll look into it, though. Thank you for your concern.”

She buzzed them into the shuttle bay and met Red. He extended a gloved hand to shake, and she passed when she saw it was covered in oil and other mechanical liquids. “Sorry. When you work so long here, you kind of forget not everyone’s a grease monkey.”

That had been all he had said until he asked her to suit up and buckle in. Now he was slowly plodding along in space, silently looking out the cockpit. They rode in silence until the Tereshkova radioed them. He looked at her and motioned to it; she confirmed their approach in Russian and then requested permission to land. In a few minutes, they were gliding into the Tereshkova, with the gentle conveyor belt bringing their speed to zero.

Once the air lock shut behind them and the bay filled with breathable air, the two climbed out of the shuttle in silence. Only two pallets were waiting this time, and Elizabeth broke off to speak with the port master. Red helped the Russians load the two pallets, and in less than twenty minutes they were ready to go off to space again. Red whistled for her and gave her a thumbs up.

“Before you go,” the port master said to her in Russian, “take this.”

He held out an ornate silver cross, which Elizabeth guessed to be Russian Orthodox in its iconography. “I can’t accept that.”

“You must,” he said to her, taking her hand and clasping the charm into it. “Your ship, we have heard the news. It is an unlucky place.”

“I don’t believe in luck.”

The Russian just shook his head and folded her fingers around the charm. “Take it, it will protect you. It would be a grave insult to not accept it.”

She was about to argue, but Red whistled again. She tucked the charm into her breast pocket and smiled at the port master. “Thank you, I’m sure it will bring the ship good luck.”

“Not the ship,” the Russian said as he walked her to the shuttle. “Just you. There’s nothing I can do for the rest of them. Except pray.”

The silence on the way back to the Drake was not nearly as enjoyable as she had thought it would be.

Harvey Amin had meant to call. He had even pulled up his phone from his pocket and opened the phonebook. It was just that, well, he never got around to actually hitting the button to call. The first time it was because he heard a window break. Then, he got stopped by one of the security officers for questioning. Next, Sojaei had dropped a pile of papers on his desk to review.

By the time he had finished that, he had a missed call from Charis. He listened to it as he walked into the parking garage. Someone had been teaching her new profanities, he thought as he climbed into his car. He tried calling back, but no one picked up.

“Hi honey, it’s me. Sojaei kept me after work, and I didn’t get a moment edgewise to call. I’m just leaving work now,” he said. “Look, let’s talk tomorrow? Coffee is on me, at the usual place. Love you.”

He pulled out and showed his ID to the guard on duty, who copied down the time he left. One other car was coming in as he was leaving, and while the windows were tinted, the garish purple was easy to identify. Only Elvis Quinton drove something that gaudy and thought it made a statement other than “I have bad taste.”

Amin pulled into a 24 hour diner and ordered the kind of food that girlfriends never approved of him eating. Chilli cheesefries, a hamburger with bacon, cheese and onion rings came out with a speed that told him it was not exactly fresh, but he didn’t care. He was eating away when his phone rang. He picked it up immediately, thinking that it was Charis calling to ream him out.

“Harvey, need you back at the office,” Sojaei said. “Setin wants us to test the relays again for the Northwest Passage.”

“Are you serious? We still have to checkout the rest of the Drake’s systems to make sure nothing else went wrong with the reboot.”

“The people aboard are doing that,” Sojaei said. “We’ve gotten the order to prepare for the passage.”

“That’s crazy,” Harvey said as he motioned for his check. “We haven’t even started a real inquest into the accident.”

“Pallas doesn’t want to waste time,” Sojaei said. “I think he’s been talking with the money people again.”

“I’m at the diner down the street, I can be back there in maybe fifteen, twenty minutes tops,” Harvey hung up on that comment. He shoveled some cheesefries down his throat and asked for a to-go box. While he was nominally an engineer on Sojaei’s team, he knew that there were more experienced members who could handle these last-minute, delicate calibrations. If Sojaei was calling for him, then there was only reason: He needed Amin for his legal skills. That, more than the chilli mixing with strawberry milkshake, gave Harvey heartburn.

The captain was not pleased with Logan’s suggestion. Even with Dr. Rutherford sitting alongside, it seemed to be a bit of callous manipulation on his part. Then he looked at the estimated neural loads for the crew that Puff had printed out taking into account his request to even further scale back the automation on the Drake. Logan waited for him to finish reading it.

“So, explain your plan one more time.”

“Phased reactivation of the automated systems,” Logan said. “The crew is being overworked. Not only that, but nearly a dozen some people were injured during the accident. Add in the three deaths, and we’re even more shorthanded.”

The captain grumbled, but he waved for the two doctors to go on.

“At the current rate, you’ll burn the crew out in two or three weeks,” Rutherford said. “The mission is expected to take years. The pace is unsustainable.”

“I’ve issued a request back to the home office to recall the Drake and the Columbus,” the captain said. “I’ve been speaking with Captain Oliver of the Columbus, and he concurs. The fuel that they used caused damage to their engines and generators. We could easily be back to Earth in under your estimated time to burn out.”

“You can’t turn us around,” Rutherford said.

“It is what’s best for the crew.”

“No, captain,” Loman said. “She literally means that we can’t turn around. If we do, the Pioneer Program is going to lose a lot of money. Canceling the voyage would likely kill the program.”

The first officer shifted a bit as the captain gave him a sharp look that said, ‘This isn’t up for negotiation.’ Loman was a born negotiator, it is how he earned his post aboard the Drake. Now, though, it seemed like everything was slipping away. First, he was worried that the mission would be scrapped by weather or something beyond his control. Now, though, he realized that the ship’s combined will, and stomach, for

the venture might be what killed his chances.

“We’re all smart, competent people,” the captain said. “We’ll land on our feet. If we keep pressing forward, when we don’t even know what’s wrong with the Drake, we will regret it.”

“That’s another possible solution,” Dr. Rutherford said. “Have you told Earth yet?”

“No. I’ve got a call scheduled with them in an hour or so,” the captain said. “Loman, I want you to start drafting an announcement to the crew. Have Lieutenant Chardon review it before you give it to me. She’s good with words, you said?”

“Yes, sir,” Loman said. “I still object to this plan. We could take some of the crew from the Ride, or maybe Columbus, to help keep the overall neural loads down. We’ve got options.”

“Introducing a new set to round out our crew could be dicey,” the psychiatrist said. “Mattering the personalities of those we add, it could clash with our current dynamic. It would also be a drain, emotionally, on whatever ship we take them from, safer than being short-staffed though.”

Most of the crew, Loman knew, had joined up for the express purpose of exploring space. As a step up the career ladder, shooting yourself into space for who knows how long was not considered a good investment. Especially since you might never come back. If you did, though, you weren’t even guaranteed the sort of celebrity that the people who flew in Apollo or Mercury missions were. It was easy to make heroes out of the brave handful of astronauts.

Once you shot a small city into space? It was old hat. They’d maybe get a yearly reunion show on late night television. Reality show stars would get more of a shelf life out of their accomplishments, Loman thought bitterly. No, everyone here was in for the long haul and the adventure. Turning around because it had become difficult, maybe even dangerous? That was ridiculous.

“Let’s see what Earth says,” Loman said, trying to bring himself back to his charismatic smile. “After all, they may have a way to get us forward without all the risk.”

“We can’t trust the computer to give itself a bit of shut eye, and you want me to subject us to crossing an asteroid field?”

“Maybe they’ll let us go around it,” Dr. Rutherford suggested, trying to be diplomatic. Loman shook his head though, he knew they’d never allow that. The Northwest Passage was supposed to be the selling point of the entire voyage. It would be like watching someone tightrope across Niagara Falls. You’re hoping an accident won’t happen, but you’re only watching because the possibility is there.

“If we avoid all the excitement, what’s going to make people pony up the dough?”

“I’ve made my decision,” the captain said. “Go on, start making whatever preparations you have to.

Loman, get that draft started."

The doctors filed out of the captain's office without another word. Loman voiced half a protest, before the captain's glare cut him off. He decided to keep the rest of his opinion to himself.

"I don't like the plan," Setin said, as Sojaei plotted several points in the asteroid belt where the Drake would be flying blind. By finding those points, they could schedule shuttle missions to fly ahead and drop beacons to find the proper nav points to bring the Drake out the other side.

"Hector's idea. I'm not a fan either, but he's the boss. You do what the boss says."

"It's risky though," Harvey said. They were not even attempting to pretend he was there as an engineer. Sojaei had him reviewing each instruction given and making sure that the engineering team's collective ass was covered in case anything went wrong. It was a bit degrading, but Amin had learned to play to his strengths since middle school. And with the Pioneer Program, engineering wasn't his strength.

"Things just seem like they're going a bit extra crazy, both here and up there."

"Well, any ideas what might be happening? You've usually got some paranoid idea or another," Lisa said. She gave Harvey a dirty look. He knew why.

"Someone needs to tell Hector this is a bad idea," Setin said. "If no one else is going to do it, I'll go up there and talk to him myself."

"Oh, yes. He's definitely going to listen to you," Sojaei said, trying to keep the sarcasm out of his voice. "Because, we all know that right now the one person he wants to hear from is the one person who burned through money on flights of fancy that we could have used troubleshooting the computer systems."

Setin let it slide, and he made a note of the next set of blind spots. He handed the updated map to Lisa, who continued plugging the information into the computer. They worked in silence for a few more minutes before Harvey spoke up.

"Actually, I think it would be a good idea, Dr. Sojaei. We want to get it on record that the engineering group disagrees with forcing the passage right now," Harvey said. "A formal protest would help to protect the engineering group from any fallout."

"That's one way to look at it, I guess."

"Fine," Sojaei said, as he tried to figure out the best way to rotate the shuttles through the blind spots without cluttering the launching and landing bays. "If you think its a good idea Harvey, go with him."

“You should come Youssef,” Setin said. “This is really a job for someone more senior.”

“I hate talking to the man. He makes me uncomfortable.”

“I’ll do all the talking, you just need to be there. For moral support. Like a cheerleader.”

Sojaei didn’t like that imagery and just grunted in response. He leaned back and looked at their map, with a sense of satisfaction. It was the part he liked most about his work, the sitting back at the end of it to recognize that it was done. He set about putting a few final touches on it while Lisa and Harvey handled the purely manual parts of sorting files and stapling and collating. The sort of grunt work that Sojaei believed graduate and doctoral students were best for.

“You won’t have to wear any pom-poms,” Setin said. “Unless you want to. I think we can find you some.”

Plotting the course through an asteroid field was a different kind of difficult, Lisa thought as the two doctors made their way out of the lab. Charting a course across a desert or the top of the ocean were relatively simple affairs. There were only so many dimensions; even a submarine didn’t have the same kinds of complications.

Sure, a submarine could go up and down, but the space up and down wasn’t, well, space. Thinking in three dimensions was something that Setin had tried to get them to do. Not just in three dimensions like every day three dimensions, but like in space. On the first day they said it was simple and that he was over reacting. On the second day, he came in with copies of “Ender’s Game” and told them it was required reading. She hadn’t bothered to read it, but Charis had. Every now and then the two of them would say “the enemy’s gate is down,” when looking at her 3-D models. This seemed to help them orient themselves.

But it was silly, down was down. That was why they had build the artificial gravity the way they had. The ship designs had a definitive top and bottom. Because of this, they could have a defined up and down in space without needing an artificial focal point, like the enemy’s gate. The only problem was that it restricted the Drake’s movement. A more traditional system would have allowed greater mobility, specifically the ability to go “upside down,” a concept that a rounder, spin-gravity ship could do, but that the Drake could not.

That complicated the travel path through the asteroid field. It was a problem with the ship design that they hadn’t ever considered, because resolving the Drake’s ability to shift in and out of gravitational environments was a bigger problem that needed to be solved in their minds. Now, though, as she replotted points that would have required impossible movements, she was wondering if they had prioritized their design solutions properly.

She made a note and stuck it on the computer for Setin and Sojaei to double check her work. She then told Amin he was an asshole and walked out the door.

Ivan sat in the shuttle bay, looking through the small windows (he had tried to call them portholes, but one of the engineers had corrected him harshly on the terminology.) He knocked back a soda, wishing that there were some liquor available. Red had tried to smuggle some aboard; he had been given double shifts for a week as punishment. No one knew where the booze had gone, though Ivan suspected it was in the captain's private stash somewhere. Maybe he would break it out for a special occasion. If so, he hoped that the captain would share with the rest of the crew. Because right now, they could all use a drink.

Emma arrived, a bandage still tightly wound around her head. She didn't, necessarily, require the bandage. She wore it as a just in case measure. Just in case the wound reopened she didn't want to get blood in her eyes or her hair. She joined the growing circle of shuttle pilots and mechanics around Ivan; soon Red joined them. He looked askance at her, like she was bad luck. Maybe she was; it had been her damaged shuttle that Teresa was working on when she died.

She shook her head, trying to clear the bad thoughts away. In one parallel universe, after all, there was an Emma who wasn't hurt, and a Teresa who was alive, and any number of permutations. There might even be ones where neither existed! These thoughts were oddly comforting to her; it helped to take the reality away from the moment.

She was still trying to push reality away when the last of the deck crew fell in behind her, standing to see over her head. Once they realized everyone was there, they all looked at Ivan, waiting on him to speak.

"Right, so," he started. He cleared his throat, which he considered calling a mulligan on the whole speech. "This is sort of an informal service. For Teresa. She was one of the good ones, best mechanic on the ship, no doubt."

There was a murmur of agreement through the crowd. He let it go on, with people remarking about how she really was the best. It was a statement no one would have thought to make yesterday. Now that she was dead, crushed actually maybe less than a hundred yards from where they were sitting, it just seemed right. Of course she was the best, that's psychology, Ivan thought. Some of the people here may not have even worked with her.

"It's always like that, isn't it?" Ivan said, in a meandering, friendly tone. "It was an accident. Could've been any of us. Life's so unpredictable like that."

He had gotten the words while talking to Dr. Logan. The psychiatrist had helped him plan what he would say, and now he wished that he was here to say it. But, no. That would be meaningless, coming from him. Everyone would think it was so transparent to have him give this informal eulogy. Now, it was equally transparent, just no one could tell. Like a magician's trick.

Here, though, is where Ivan decided to go off script. "And, frankly, we know that. Challenger and Apollo 1 killed people; I'm sure the Russians lost some astronauts too. We're going to space, not grandma's

house. I don't know what the officers in charge of this bucket of bolts are going to do, but you know what I'm going to do? What we're going to do? We're going to put this behind us and get ready to go deeper into space than any one has ever gone. And when we get there, we're going to name the first fucking planet we find after Teresa Gains."

The rest of the pilots nodded; someone started to clap. Ivan had told Red to start the clap, maybe he even had. He couldn't tell, because soon the pilots and mechanics, the entire dock crew joined in the applause and the cheers. Someone called out, "For Teresa," and the rest of the night passed in a blur.

Elvis Quinton was back at the office, overseeing the plans for the mock up of one of the pioneer ships. Kingston's offer was still in his mind. How indeed, does one get their foot in the door of space travel? Quinton had come there through a rather roundabout method, and his colleagues had all sort of fallen into place, except maybe Setin, who probably had been chomping at the bit to get involved since he was born.

When he was a kid, he hadn't paid much attention to these sorts of things. He wondered what kind of world he could have lived in if he had been one of the nerdy kids instead of a bit of a jock. Maybe still with the same build he could have been a mechanical engineer. One of the boys with the wrenches and the muscles. They always needed hands-on men like that in the labs and the machinist shops. It would have been a different existence, a more cerebral one.

He let his mind drift to whether he would have been happier that way. "Probably not," he said out loud as he plugged in the last numbers into the spreadsheet. He clicked his phone to hands free and called the machinist shop. One of the men there was still around to answer.

"How's the progress going?"

"Hey, sir. We just got the order, what, early this week? We're not going to throw it up over night."

"We're going to need money, we're going to need it soon. Make it happen."

"Then authorize more overtime for the crew down here."

Quinton thought about that, looked at the figures, then said, "I'll talk to Hector in the morning."

"Thanks. Did you need anything else, sir?"

"Yeah," he said. "I was thinking of sending some of our PR people around to sort of follow the process. Thought it would make a good Web video."

"My guys don't really want that."

“It was less a thought, and more of a head’s up. They’ll be there bright and early at nine tomorrow.”

“My guys get here at seven.”

“Ok. Then I’ve got another call to make,” Quinton said, hanging up.

“What’s most important, right now, is finding ways to reduce the cognitive load on the crew while enabling us to get back home as swiftly as possible,” the captain’s orders still rang in the three amigos heads. They had been working on bridging functions, finding new ways to interface with systems to limit the amount of duplication. That was on top of the report they were preparing to explain the accident that had killed two of their crew members. They started winding down at about three in the morning, Drake Day time. Peter was the first to bow out, followed by Mary about ten minutes later.

Paul was still working on Puff, who felt that he owed it to his old friend. He belched in the lab, sometimes cleared his ear with his pinky. He had tried to tab through the various commenters that the Earth-side coders had put together. The three amigos, as the captain called them, hadn’t been able to attend as much of the initial coding and code review to get their required physical training.

Initially, Paul had thought that was a pretty terrible oversight. It would be like a doctor doing an operation while skipping reading the patient’s charts. He had no idea what was on the charts, but he hadn’t thought that the Earth-side team could be so incompetent. He had managed to find out what was causing the clocks to not synch up, but he had yet to find a way to fix it. Sometimes he would have them running fine for a minute or two, but then they would slip a few seconds or a minute.

He hadn’t even wanted to try to tackle the more complex problems until he had a complete understanding of the entire code. That’s why he had started back at the top and began reading down. He opened a separate word pad on his desktop, taking notes, listing variables and nesting his own comments when he reached a particular part of spaghetti. He was hesitant to streamline the worst parts of the code, because he wasn’t sure exactly what streamlining it might do. Ideally, it would do the same thing, but with less muck. But, who knew where some of the operations were pointing? There was no one Earth-side to help him; they had all knocked off for the night.

He made a comment that they really needed 24-hour deskside service. Or was that spaceside? He commented out to share that joke with Mary and Peter in the morning. The work was interesting, and he enjoyed the feeling of tackling novel problems in a place people like him had rarely been before. Sure, there had been NASA geeks on the ground, but here in space had always been a different world. Now, he was there. It wasn’t quite Star Trek or Star Wars, and he knew it never could really capture those fantasies for him.

But, here he was. If he walked to the right part of the ship, after consulting his map of the ship and space, he could look back on Earth and flip all of those fuckers off, he thought. The people who had tormented

him were now selling used cars or who knows what, while here he was. When they came back, he was going to be famous. He already was compiling notes for his memoirs. He was thinking of titling it: “Paul: He’s Been to Space.”

“Yeah, the title could use some work,” he said between bites of his candy bar. He had brought aboard a personal supply of a few hundred. He knew that they would barely last the trip, but it would help ease him into the more austere living required to live in space.

“Once I get back though, I’ll be rolling in it,” he thought to himself, as he read the comments of someone just listed as John H. For some reason, there was a huge section of code commented out, with John H. just stating that simulated weather seemed like a good idea. “But, ultimately, we realized that there was no good reason to simulate rain and snow. Not only that, but it is a waste of water and other resources.”

“Shit,” Paul said and just deleted the entire section of deleted code, which came out to maybe seven or eight pages of text. “Clean your shit people.”

He went on clearing out huge sections of commented out code; in half an hour he had cleared some forty pages of what he was politely going to call refuse at the next morning’s meeting. There was a knock on the door, and he called out, “Come in.”

There was another knock, more impatient this time. “Come on in. Doors open.”

There was another knock, and Paul got up to open the door. Peter and Mary found him dead in his chair at six in the morning, stabbed through the back of the head; no one had swiped into the room. The security team responded to their emergency calls well within the accepted regulations. It was one of the few things still running properly on the Drake.

Orn and Nichols were called in to Pallas’s office so early that Orn wasn’t even sure if he had been asleep yet. He remembered going home, kissing his wife and checking their son’s math homework with her after a glass of wine. He remembered checking in on the little tyke and ruffling his sleeping hair. But, he wasn’t sure when the phone call came. Was he in bed with his wife? Were they still snuggling on the couch?

It had been a shock, and he wasn’t even sure that it was true yet. Maybe he had fallen asleep on the couch, or maybe they hadn’t made love and he’d just passed out. He knew he hadn’t told his wife about Ramona. He never liked sharing the bad news at home. Home was a fortress; the love in that place kept the bad things outside.

The phone call, he knew, had to be real though. One of the bad things had infiltrated his house and yanked him from that love’s warm embrace. Nichols had still been at the desk, so he drafted her as his aide for the day. She’d bucked up well, and he thought she might have the stomach for it. They came into Pallas’s office, and he was still wearing what they saw him in the day before. A nearly empty brandy glass was on

his desk, and he offered them some as they came in.

“We’re on duty,” Orn said.

“Never stopped me,” Pallas said. “What you hear doesn’t leave this room.”

He clicked a button and the automated voice of the Drake clicked on. “This is an automated, emergency message. A security officer has filed an incident report. Incident 32,451,555: Subject Paul Garfield was apparently killed at his workstation this morning. The exact time of death can be estimated within the hour.”

Pallas turned it off. “It goes on like that.”

“Apparently killed,” Nichols said. “Does that mean it may have been an accident?”

Pallas clicked it back on: “The body was found with a knife from the cafeteria lodged in the base of Paul’s skull. Death was perhaps instantaneous.”

“What else do you know?” Orn said.

“I haven’t heard from the ship’s crew,” Pallas said. “This has been an automated report. Which worries me. The captain turned these off after we received a constant upload of incident reports stating: ‘No incident to report.’ We should not have gotten this.”

“What’s the name of the man who filled out the incident report?”

“The computer says it was Chief Harry Ilva.”

“Get him on the horn,” Nichols said. “I want to look at the crime scene. I’m sure Orn does too.”

“We don’t have a remote presence,” Pallas said. Which was, he thought, another thing that they would need to consider in their second generation of pioneer ships. If they ever got a second generation. The ground crew constantly wanted to look at things, to poke at things. But, they were here, and the Drake was there.

“Have you been able to raise anyone?”

“I was waiting for you two. This is your area of expertise, not mine,” Pallas said. He hit a button, and the tablet he was using kicked on to a standby screen. There was a brief flicker as it swapped to “Connecting...” with a picture of the Pioneer Program’s logo slowly spinning.

The captain’s unshaved face clicked onto the view screen, “Mr. Pallas, I hope this is important.”

“I’m calling about the murder last night,” Pallas said. “So, you can bet your ass this is important.”

“What are you talking about?”

The two security officers glanced at each other; the captain finally noticed that they were on his screen. He rubbed his eyes and restated his question. Pallas forwarded the incident report; they all heard the beep in a few seconds when the captain received the email. He clicked, and his brow crinkled.

“I didn’t authorize the reautomation of the incident reports.”

“Someone fixed it,” Pallas said. “That’s the only one that we’ve received, so whatever was causing the earlier erroneous reports has been resolved.”

“Excuse me if I don’t jump for joy at that news,” the captain said. “I have to get to the bridge and get briefed. Good day.”

“Wait just one damn second,” Pallas said to the spinning Pioneer Program logo. The two security officers looked at each other again, with Nichols taking a seat.

Orn cleared his throat, “I think I’ll take that drink after all.”

Captain Theo Smith stormed onto the bridge, it was a whirlwind of anger and shouting that pierced the crew’s professional facade. Elizabeth glanced at Bill, who visibly winced as the captain said: “Who the fuck authorized this report without bringing it to my attention?”

Loman was the officer-in-charge, and he cleared his throat, “I’m sorry sir; the security chief was still finishing his preliminary report. Once we had the final, I was going to brief you.”

“I should have been briefed on this from the moment it happened.”

“You were off-duty.”

“The captain is never off duty, Loman,” he said. “Chardon, take command. Loman, we’re going to talk to security.”

Loman joined the captain as he stalked off the bridge, with Elizabeth taking his place, letting one of the junior officers take her control panel over. “Alright, continue on the captain’s charted course back for home.”

Helmsley called out a simple “aye, aye.” He plugged away at his workstation, at first with relative ease. Then, with increasing frustration.

“Navigation, why haven’t we changed course?”

“The course has been locked in,” Helmsley said.

“Then why aren’t we following it,” Chadron asked looking at her own displayed navigation chart. “We’ve left formation with the Tereshkova and Ride, but we’re not heading the right way.”

“I know,” Helmsley said. He called down to engineering, but they reported back that the engines were fully operational without any damage. All of the stabilizers were operating at peak efficiency as well. There was no reason that they should be off course. Elizabeth crossed her arms as she looked at the large view screen. She tried to think what Loman or the captain would do in this situation.

“Puff,” she said, deciding that she was going to do what Lieutenant Elizabeth Chadron would do instead. She was given the helm; it was her show. “Is there any reason we can’t change course?”

“The course has been locked in,” Puff’s mechanical voice said back.

“No, I want us to use the course that Navigation just provided.”

“I am currently using the automated course that was beamed from Earth-side last night. Only Captain Theo Smith, in coordination with two other officers, can override this course.”

Helmsley cracked the knuckle in his thumb and whistled. “Hey, lieutenant, we disabled the automatic navigation system back when it plotted a course that would’ve rammed the Columbus.”

“Puff, disable the automatic navigation system.”

“I’m sorry,” Puff said. “Only a Tier-0 administrator can deactivate automated systems.”

“Puff, who are Tier-0 administrators?”

“I’m sorry,” Puff said. “There are no registered Tier-0 administrators.”

“That, doesn’t sound right,” Helmsley said. Elizabeth gave him a ‘shut up’ glance.

“Who reactivated the automated systems?”

“The automated systems have never been deactivated, according to my logs,” Puff said.

Elizabeth started to pace; nothing was making sense. She looked out to the other officers, then stumbled on the right question: “When were your logs last modified by a source other than yourself?”

“My logs were last manually accessed from Paul Garfield’s office at approximately 0326 this morning. I was accessed by Paul Garfield.”

“You, go get the captain and bring him back here. We need to override the new nav points,” Elizabeth said. Then she looked and saw where the points were taking them. “On the double officer. Keep radio silence on this though; let’s not alarm the crew with this or the murder.”

The junior officer took off after the captain, and Helmsley brought the estimated course of the Drake onto the main view screen. “We’ve only got about ten hours, or else we’re going to be making the Northwest Passage, whether we’re ready or not,” he said. “So, no pressure, sir.”

Setin was the first one back in the office that morning. He had three coffees, one for him and his two assistants. He walked into the lab and noticed a sticky left in Lisa’s rushed handwriting: “Dr. Sojaei & Dr. Setin: Previous plotted course impossible for Drake. Please make changes before being sent up.”

Setin eyeballed her corrections and chuckled to himself. “Yeah, these are some serious corrections,” he said to no one in particular. “I’ll plug them in after I see if we received anything last night.”

It would be hours before the engineering crew Earth-side learned that their new coordinates had been beamed up due to the automated data transfer being reactivated at approximately 0320 that morning.

Part III: Troubleshooting

Harry Ilva was a red haired Irishman of a dour disposition. He had accepted the position on the Drake thinking that it would be a relatively tame job. After all, they don't let crazy people into space. There was always the chance that they might go crazy, he had thought, but he expected that if that happened it would be something a little less drastic. Maybe some vandalism or a love triangle. Something like that.

He was especially dour today, managing the few other security guards who could be spared from their rounds to secure the perimeter. Peter and Mary had been held for questioning, but they weren't offering any usable information, if they even had any. Ilva didn't think that they did; he had searched the database for when their security cards were used, and they swiped into their rooms before Paul was killed. Their ID badges weren't used to open any of the automatic doors elsewhere, either.

"I do have one question, though. How come the security cameras were disabled?"

"We didn't disable them," Peter said. "I didn't even think that there was a way to disable them from the console."

Ilva had more questions, but before he could launch into his interrogation, he heard one of his men stammering that the area was secure, sir. Well, yes, the subordinate explained, I was told no one was supposed to come in here. Ilva puffed out his chest and made his way to help the weak-kneed man dismiss whatever rubberneckers were coming by. Then his ego deflated as the incredibly mustached, and fiery-eyed face of the captain stared him down.

"I want a status report, now."

"Clive," Ilva said to the man, "When I say no one is allowed in, make an exception for the captain in the future."

"You said no exceptions, sir," Clive protested, but the captain and Ilva ignored him. Loman placed a comforting hand on the confused man's shoulder as the captain surveyed the scene. The body had been discreetly removed, but the blood had yet to be cleaned. The computer was powered off, and Ilva confirmed it had been found that way.

"Did you check it for fingerprints?"

"And DNA. Nothing besides Paul's and the other coders'."

"Could one of them have done it," the captain asked. He looked into the next room where Mary and Peter were answering questions about their movements the night before and the work they were doing.

"Couldn't see a motive," Ilva said. "I mean, if anyone was going to stab anyone in a love triangle with those three, I don't think anyone would peg the fat slob as the one who would need to be bumped off."

“Maybe it was a work dispute?”

“Doesn’t look that way,” Ilva said. “The tablet he had open seemed to indicate from their emails that they were pretty much on the same page with whatever your orders were.”

The captain took the tablet from Ilva and scrolled through the emails. Everything looked in order; they had been trying to tighten up some of the coding. Paul had even sent an email probably a few minutes before he had been killed. It was a bit inane, something about “chopping out dead code,” and that he wanted them to bring him coffee in the morning because he was going to be here all night fixing things. Then he added a winky emoticon at the bottom.

He returned the tablet to Ilva, who placed it back in the case it had come from. The two of them surveyed the scene. “Is there anything else you can get from the crime scene?”

“No. Our boys got everything there is to get.”

“Then get it cleaned up and get those two back to work,” the captain said. “It is imperative we get back to Earth to turn this over to the legal authorities. It is just one more way this voyage is all cocked up.”

“We’re turning around, sir?”

“You read the emails; you don’t have to pretend at surprise.”

“I just thought we had legal authority up here.”

“We do,” the captain said. “And I’d be more than happy if one of our test cases was something a little less dramatic, to test how, exactly, that would go across with the judicial powers at home. Might I remind you we’re technically not military, so I do not actually have the authority that a military admiral or captain might have.”

“Still, we have jurisdiction up here.”

“In theory,” the captain said. “But, like a lot of things on the Drake, I’m not too sure I trust that theory.”

Setin found no received messages from other worlds, just as he had depressingly predicted. He would have normally been plugging in the new coordinates to the Drake’s systems, but he had been called away to another emergency meeting in Pallas’s office. He showed up with coffee to find that Chen, Sojaei and Lewiston were already there. He disliked being late. It meant sitting the furthest away from the candies on the desk.

“Alright, I’m here. What’s going on?”

“There’s been a murder,” Pallas said. “Read the brief while I give the details. Multitask.”

Pallas brought his team up to speed, and Elvis came in midway through the brief. He stood at the back of the room listening. Once it was done, he asked, “So why did you bring me up here?”

“I want you to cancel whatever part of the Drake you’re building. I want a recreation of the crime scene built, today. Get a skeleton of it up, then get Orn and his security team to try and reconstruct what happened there,” Pallas said.

“We’ve got some skeletons started, but getting the interior is going to take time.”

“It doesn’t have to be perfect, I just need it to look close to right.”

“Remember when you thought it was just going to be a giant waste of money?”

Pallas motioned him out of the room, then he turned to the rest of his team. “I want suggestions on what we do about this. Once the media and government get wind of this, they’re going to want to investigate.”

“What about the dead man’s family? They might want some answers,” Chen said.

“They’ll get them. One of the good things about this murder, at least, according to Captain Smith, is the culprit can’t exactly run away,” Pallas said.

Setin flipped through the report again, letting his eyes rest a bit on the grisly pictures of the dead body. “I didn’t see this information coming down from the Drake this morning,” he said. “We usually notice large data packets coming or going.”

“Someone re-automated the data exchanges,” Chen said. “I noticed it this morning when we got updates on most of the crew’s medical reports. We had only manually been sent those that were injured in the recent accidents. Today, we got a few thousand reports of ‘everything is fine.’”

“Have you reviewed all of the reports?”

“I’ve got people doing that, just in case there was any good data in the pile of bad.”

Lewiston ate a candy, read a page, then ate another candy. This was one of the first crisis situations she had imagined. Four thousand some people all cooped up, nowhere to go, only a limited number of possible sexual partners, only so much space to put between you and your annoying coworker, someone was bound to snap. But, that didn’t add up in her mind with what she was seeing.

“Why did he turn his computer off before being killed,” she asked.

“We don’t think he did,” Pallas said. He finally sat down again. “Which brings me to the part that isn’t in the report. I think the saboteur struck again. This time, there’s no real doubt about it.”

“What do you mean ‘no real doubt,’” Sojaei asked. “People kill each other for lots of reasons besides sabotage.”

“It’s all the automation, isn’t it,” Setin said. “The saboteur’s trying to inundate us with data. If we’re too busy filtering through thousands of green messages, we might miss a red or yellow flag.”

“That’s one hypothesis,” Pallas said. His communication tablet blinked, he was about to click ignore when he saw it was from the Drake. He accepted the call, holding a hand up to the rest of the team to ask for silence. A young, maybe middle-aged, woman was on the other end on the bridge. While she was trying to project an aura of calm, Pallas had negotiated enough business contracts to sense when someone was playing from a weak hand. It was all in the eyes.

“This line is normally reserved for the captain.”

“I’m Lieutenant Elizabeth Chadron, and I have the helm at the moment,” the woman said. “The captain is about some important business.”

“This line is normally reserved for emergencies.”

“I’m calling to request that Earth-side return navigational control to the Drake and allow us to override the coordinates you beamed us this morning,” she said.

“Setin, did you beam any way points up to the Drake?”

“We were going to do that this afternoon,” Setin said. “Even still, that wouldn’t take away control from the crew.”

There was a shout from the comm screen, and the lieutenant looked over her shoulder. She nodded, then turned back to face the screen. “My helmsman just informed me we only have about seven hours to regain manual control.”

“Before what, exactly, lieutenant?”

“Before the Drake begins the Northwest Passage,” she said, the confusion creeping out of her eyes and into her voice. “Sir, didn’t you authorize these orders?”

“No.”

“Damn it,” Setin said, smashing his coffee on the table. “The automated data transfer. Sojaei, we need to

go, now. There were some final changes we needed to make to the way points."

"Lieutenant," Pallas said, as the two men raced from the room. "I'm not sure what is going on,but I will have my people return space-side control to the Drake. We will also be sending updated nav coordinates for the Northwest Passage later today."

"Sir, with all due respect," the lieutenant said, "I thought the captain had told you that we're setting a return course to Earth."

"Have the captain call me," Pallas said. "Goodbye, lieutenant."

Lewiston and Chen looked at Pallas, and watched as he lit another cigarette, eyes gazing out the office window. "Get back to work."

The junior officer that Chadron had sent from the bridge was named Carter. He was a bright sort of man, energetic and competent. When he hadn't reported back in about half an hour, she had tried to call the captain directly. Loman answered instead; he told her the captain was still talking with Ilva. She briefed Loman on the situation.

"Haven't seen your messenger yet," Loman said. "Should've just called. I'll let the captain know, just call down to Earth-side and get control back."

As soon as Captain Smith had finished, he found Loman waiting outside the door with Clive, the over-enthusiastic guard. The captain shook Clive's hand and walked with Loman back to the bridge. On hearing the news, the captain's eyes darkened.

"They're going to send us on a suicide run," the captain said. Loman just nodded.

"They sound pretty sure of their plan," Loman said, then with a delicate touch, added, "besides, we're supposed to be going that way any way."

"No," Captain Smith said. "We're returning to Earth, now. I'll straighten everything out once we've got manual control again."

The argument was cut short, because the two found what had been keeping Carter when Loman opened the door to the stairwell upstairs for the captain. The junior officer's body collapsed out of the stairwell, into the captain's surprised arms. Captain Smith stumbled back, trying to hold the man up, only to realize that he was entirely limp when he pushed the inert figure back and it collapsed against the floor with a thump.

Loman dropped to one knee, letting the door slam shut on Carter's ankle with a crunch. He checked for a

pulse and found none; there was a patch of blood seeping around the back of the man's head, and his eyes were pooling with it as well. His nose was disfigured, and when security secured the stairwell, they found where his head had been smashed against the walls.

Before that, Captain Smith pulled himself to his feet, radioed the bridge and ordered the ship's status raised to full alert.

"Captain," the lieutenant said back to him on the radio, "I can't do that."

"I'll explain why on a secure channel. Do it, now."

"No, I don't mean I can't because of the regulations," Chadron said. "I mean I can't because we're locked out of most of the Drake's systems. Didn't you get the message?"

The captain looked at the dead officer and finally recognized him from the bridge. "No, no I did not."

Lisa and Charis were still in the office trying to get the new data beamed up to the Drake. Sojaei and Setin had set them about the task, while they went to try and work with the coding teams to find out what was going on. They hadn't been brought into the big secret of what was going on with the Drake, but the two women knew that, whatever it was, it wasn't good.

"I saw Amin last night," Lisa said. "He was called into work."

"He should have still called." Lisa just shrugged at that, leaving it be. It was time to work, not gossip.

"I don't know why they never sent the new coordinates up," Lisa said, hitting the transmit button for the who know's what time. The screen read "Sending…"

"We've already tried that," Charis said. "We need a new work around."

"Directly sending it to the Drake isn't working. Maybe we could try bouncing the signal? Maybe the Drake's out of range or there's something interfering with the signal?"

"I don't think that's the problem," Charis said. "We get error messages back when that happens. We're just getting that the message failed to be sent."

"Which is a frustratingly vague message," Lisa said. "Let's draw up a list of our programmed in error messages. From that, we can rule out what isn't the problem."

Charis agreed, and the two spent the next fifteen minutes reviewing the program's bible (which was a phrase that Lisa found to be a mild blasphemy, but hadn't fought Setin on the term.) They

cross-referenced the error messages with the variety of reasons they thought the new coordinates might not be reaching the Drake, but there were no technical or logistical issues they could think of that did not fit their pre-existing error codes.

So, they took a break to walk to the coffee machine. Now, Lisa thought, it was safe to gossip. “Have you told him you want him to call?”

“Yes, but he just doesn’t listen to me,” Charis said. The two women stopped mid-coffee and looked each other.

“The Drake is just being a typical guy,” Lisa said, in her awkward eureka moment. “It’s not getting the message because it isn’t listening. That’s why we’re not getting an error message; nothing is wrong with what we’re doing.”

“Lisa, I love you, but you get inspiration in the weirdest ways.”

Ilva’s men were starting to get spread thin. The idea of a serial murderer on their hands -- or was it spree killer? He never could keep the two straight, and now was probably not a good time to let anyone know that. The idea of this person who killed multiple people, he corrected his thoughts, was unnerving. It meant that someone who was inherently unstable had gotten onto the ship. He would have to try and get a look at the files that the psychiatrist kept on the crew.

But, doctors could be so tight-lipped about that information, and he wasn’t sure how much time they had until another body showed up.

“Any motive,” he asked Clive, who just shook his head.

“No, sir.”

“And I’m guessing we haven’t gotten the security cameras back up and running?”

“That’s right; a lot of our systems were compromised last night,” Clive said. The much vaunted two-token access system didn’t prevent whatever was happening. Ilva figured that whoever killed Paul just used his system to interfere with the Drake’s functioning, then powered it down and wiped out any trace he had been there.

Still, Ilva thought, that doesn’t explain how he got in to kill Paul without getting noticed. The previous camera data was pretty much all there; whoever had gone in had only deleted the relevant data. But, there was a lot of relevant data, and a lot of it had caused what Ilva was calling collateral damage. In addition to not knowing who accessed the corridors, they had lost access to the movements and rounds of a lot of the engineering and other crews. The list of to-dos had been lost, and what Peter called Puff’s “honey-do” list

had been compromised.

And that was only the tip of the iceberg, considering the way the captain had stormed away once they found him with Carter's body. Loman had apologized, and hung around after the captain left to offer whatever help Ilva needed. He was glad for that; Loman was a competent officer. He had a cool head on shoulders, and Ilva liked the guy.

"Alright, let me help you here," Loman said, kneeling down to help move the body onto the stretcher. The medical staff were the same guys who had helped with Paul, and they clearly were starting to sweat. Loman clapped the two men on the back and carried on an easy conversation while Ilva moved back to where he found the body.

He was examining the blood splatters when Loman came up next to him and leaned one hand against the wall while looking over his shoulder, "What are you looking for?"

"I'm trying to see if the attacker left any evidence," Ilva said, standing back up. "But, it looks clean."

"Maybe we'll find skin or hair on Carter?"

"Probably not," Ilva said. "The attacker didn't leave anything on Paul."

"That was planned though," Loman said. Ilva raised an eyebrow, asking him to go on. "You could tell by how the attacker brought a weapon. You could tell because the attacker had something he wanted done there. Here? No weapon. No reason to kill Officer Carter that I can see."

"What would our attacker get out of this, indeed?"

Loman shrugged, and the two knelt down to look at the blood again. "I trust you'll figure it out chief; you've got all the time in the world."

Setin didn't like the doctoral students' theory, but he had to agree, it was the only one that looked valid. He had tried to beam up the new coordinates himself; he even tried relaying or bouncing the message in case there was direct interference. He even tried emailing the new coordinates to Puff with an executable to inject it into the machine like a virus. None of it had worked, and so he came back to their conclusion.

"The Drake just isn't listening," Setin said. "This isn't a problem I'm used to having. Transmission is usually the hard part. Reception should be easy."

"We've had the engineers there do a spacewalk, no external damage," Lisa said.

"Same with the interior. They can't get Puff to do a diagnostic scan for them, but their physical search

comes up with nothing out of the ordinary," Charis said, rubbing her still throbbing temple.

Setin looked back at the new coordinates and winced. "How bad will it be if we don't get them the new coordinates?"

"The stress shouldn't be that bad," Charis said. "It's just the ship was never designed to move like this."

"Because of the way we built it, it is going to cause some issues with the gravity," Lisa said. "Unlike a standard shuttle or rocket, there's a definitive 'down.'"

"Right, where the enemy's gate is," Setin said. "It seemed like a good idea at the time to give the crew a unified sense of direction."

"Right, so think of what will happen when the ship arcs like it will here and here, and in a few other places," Lisa said. "It'll be like an ocean liner riding a wave. The crew is already securing everything not bolted down, but it goes to almost ninety degrees here."

"Passengers should buckle up and get their trays in the upright position then," Setin said. "That's how they were during blast off."

"We didn't need as many people out and about then though," Lisa said. "We need people manning critical positions, as well as in the flight tower so that the shuttles can drop beacons on asteroid families and clusters."

Setin looked at the current flight path, then overlaid the new route. The differences were not significant, but they were enough. "Alright, Charis, your turn for the coffee run," Setin said. "Lisa, let's go talk to the Earth-side programmers. Maybe we can manually plug in the new coordinates from our end. We're going to make this stupid machine listen to us."

Peter was on the phone with Earth-side, and he recognized the voice of Dr. Lawrence Setin. They tried his latest work around. "Sorry, boss, nothing. I don't even have access to that part of Puff's programming any more."

The disembodied voice told him they were going to take five and come up with a new plan, and Peter was just fine with that. Working around the smell of chlorine and death was getting to him. He slipped out of the room and into what would have been fresh air, but he knew that it had probably been rebreathed and reprocessed thousands of times by now. It still did the job, and it didn't stink. But his mind substituted a stale taste. He knew it shouldn't have a taste. Still, his mind betrayed him.

Mary was outside as well, and he leaned against the wall with her, watching the security people rushing through the hallways.

“Who could do something like this?”

“Most people could,” Peter said. He was detached, forcing his brain to be more literal to avoid the gnawing fear in his gut. “I just don’t know anyone who would.”

“They killed him to mess with Puff.”

“I know,” Peter said. “Judging from what we’re seeing, someone was willing to go a long way to take away our manual controls.”

Mary and Peter let the silence settle around them; they walked away from the security team, intent on their own thoughts. Finally, Mary broke the silence: “Do you think someone from the Pioneer Program would do this just to make sure we finish our mission?”

“It’s possible,” Peter said. “Paul was big on the conspiracy theories.”

“What do you think we should do next?”

“Let the captain and chief handle the investigation,” Peter said. “We need to get Puff to talk to us.”

The two of them took a breath of slightly fresher air, before diving back into the chlorine and blood soaked workstations.

The recreation of the three amigo’s room was going at a steady pace. Elvis watched the workmen construct each doodad and thing in there without passion. He had just heard about the second murder. One murder you could cover up for a bit, or at least pass off as a fluke. Two? Two were going to kill your fundraising efforts. He grimaced at the unintentional pun.

Lewiston joined him; the two of them had an odd relationship. They were the people people, Pallas had said. It was their job to think of warm bodies and not numbers. Where Setin and the others were focused on the mechanical and technical aspects of getting four thousand people into space, Lewiston and Elvis were tasked with knowing what to do with them once they get up there and keep them from going crazy.

“We’re pretty big failures, aren’t we Sylvia? I mean, look at what’s going on up there.”

“Please, their per capita murder rate is hardly worth noting,” she said. “Besides, we don’t know the why. Without that, we can’t really say whether we could have seen it coming.”

“The second murder seemed more opportunistic,” Elvis said. “He was just in the wrong place at the wrong time.”

“I don’t think the two killings are related,” Sylvia said. “The first one was planned, right? The second one took place hours later; there’s no real connection.”

“I’m more worried about what’s happening to the crew; have you talked to Logan?”

Lewiston shook her head. She had no reason to talk to Logan. He was off conducting therapy sessions with the most traumatically impacted of the crew. “I do have an appointment with Dr. Rutherford.”

“Maybe she’s got some insight too,” Elvis said. “I’m going to help them carry some of the materials in. Idle hands are the devil’s playground and all.”

Besides, Elvis thought as he picked up one end of a desk fixture, he was a big, strong man with capable muscles. The construction continued throughout the day, but he knew that there wasn’t much to be learned from this exercise. It almost felt like everything they were doing on the ground was futile. Pallas puffed on his cigarettes; the engineers punched endlessly on their keypads, but nothing, ultimately, got them anywhere. And, for him, the minutes ticked away into hours, and still no word of success from Sojaei or Setin.

Captain Smith relieved Lieutenant Chardon on the bridge and began barking orders. He wanted the ship searched in teams of two for any person not at their station. All people were to report in on their current positions; the shuttles were to begin preparing for emergency evacuations. Anyone who was not essential to operating the ship was to suit up and make their way to their designated escape shuttle or breakaway quarters.

“We’re not going into that asteroid field without full control of this ship, Mr. Pallas,” Smith said. “That is final. Cut the channel.”

Chadron cut it with almost sadistic glee. “Captain, what’s your next order?”

“Pull up Hartman and Jones on the console,” the captain said. “Helmsley, you’re useless to us right now without control. Find Loman and get him up here; he’s probably locked in a bathroom or something.”

Bill snapped a smart salute and pulled his jacket on as he walked off the bridge. He always liked an excuse to the leave the bridge; he tried to call Loman. No luck. The first officer was pretty tight lipped around him, so he figured he’d just make his way to the last place that he had been sighted. He called up to the bridge: “If he comes back before I find him Elizabeth, let me know so I don’t waste my time.”

He found Ilva still at the top of the stairs, slowly pacing, looking a bit like a red-haired Sam Spade. Then again, Bill thought, maybe he was a ginger. Not like he ever watched whatever movie that guy had been in. They exchanged quick greetings, and Ilva shook his head.

“No idea where he went, I did find this though,” he said. He showed Paul’s identification card to Bill. “I can’t figure out what it was doing here or why the killer would have brought it here.”

Bill shrugged; he wasn’t going to be this guy’s sounding board. He asked which way Loman had went, then said goodbye. Ilva kept flicking the card, trying to understand why it was out there. The killer, he reasoned, was taking a huge risk walking around with it. It would explain how some of the doors had been opened after Paul’s death, the killer had taken the badge so that he didn’t register as opening any doors around the time of the murder.

“Still, why not ditch it in the trash? Why ditch it here,” Ilva asked into his tablet. Orn was still there, Earth-side, tired, and wishing that instead of solving a pair of murders, he was helping his kid with multiplication problems.

“It explains why they killed Carter though. He got spotted with the dead man’s badge,” Orn said, after a short delay. The delay was unnatural, but a byproduct of Puff ratcheting up the automation. The system was busier, slowing down other processes. “He had to kill Carter or get exposed.”

“That makes less sense; he must have been carrying it around for hours then.”

“He was; if we had full access to the records, I bet we’d see Paul’s card getting used in lots of places,” Orn said. “We could cross-reference that with the crew’s movements and pinpoint our guy.”

“I checked, by the way, Carter’s badge is still there.”

“So despite what the boss and the higher ups wanted, the murders are connected and not random,” Orn said. “I don’t think, though, the badge is going to help us figure out who our guy is.”

The first announcement came over the speaker, ordering everyone to prepare for potential evacuation procedures. Mary and Peter came jogging up the stairs and nearly bowled Ilva over.

“Our access has been blocked,” Peter said. “We need to get to Puff’s mainframe and access the console manually. Captain Smith said your clearance should be high enough to get us in.”

“I’m working on a murder right now,” llva said.

“We don’t have time,” Mary said. “We need to redirect our course soon or we’re going to hit it.”

“Hit what?”

“One of the asteroids the Tereshkova was supposed to beacon lost its beacon a few days ago,” Mary said. “The orbit shouldn’t have put it in our way, but that was before we knew it had been hit and redirected. Sort of like a pool ball. Now, it’s on a direct course for us.”

Ilva hung up on Orn unceremoniously and radioed the bridge to let them know he would be escorting the programmers to the main frame. Then, he asked, “So, where, exactly, is it?”

Hector Pallas coughed and smoked, smoked and coughed. He had been listening as Setin and Sojaei relayed that their measurements saw a new asteroid on an intercept route to their old coordinates. Lisa and Charis insisted that it wasn’t supposed to be there. “That doesn’t matter, it is there, right now,” Pallas said. They then lost contact with the Drake.

A burst email came through from the captain stating that he was starting evacuation procedures, and that he had a team working on gaining physical access to Puff’s central main frame. The communications were terse, and Pallas thought that was more to the captain’s mounting frustration and less to do with technical difficulty.

Smith gave no indication that he received Pallas’s order to cease evacuation procedures.

“It doesn’t matter,” Sojaei said. “If they don’t regain manual control, they may not be able to even separate the living quarters from the rest of the ship. I don’t even know if they’ll be able to launch the shuttles.”

“What are you doing to fix this?”

“What can we do,” Setin asked. “Our security was too tight for us to get through some back door, and Puff just took the phone off the hook.”

Pallas looked at his communications tablet, willing the spinning Pioneer Program logo to boot to someone, anyone, from the Drake. Columbus had already floundered and was still waiting on fuel. The Amundsen’s lack of probes and beacons meant it couldn’t hope to be the first vessel into the asteroids.

“If we had placed some sort of kinetic weapon, we could break up the asteroids before they hit the ships,” Sojaei said. “Just a thought for our second generation ships.”

The silence slipped back into the room, like a comfortable old friend. Another transmission came in from the Drake, and Pallas read it to himself. He punched back a reply, deleted it, then leaned back into his chair. “The pilots seem to be declining the captain’s request for an evacuation.”

“We’re not turning this ship around,” Ivan shouted, as he joined the rest of the pilots in a line around the shuttle. Dr. Rutherford and Elizabeth had been dispatched from the bridge, but their explanations had been ignored.

“Ivan, listen to me,” the lieutenant said. “We’re on a collision course. We have no manual control. We need the shuttles getting ready to scramble.”

“Even if we wanted to, we can’t,” Emma said. “Besides, we signed on to go to space, and damn it, we’re not giving up on this mission.”

“This is suicidal,” Rutherford said. “We’ll have another chance, but if we get torn apart by meteors or drift into who knows where, we won’t.”

Rutherford felt her wrist vibrate and looked down to see a message from the captain. She cleared the message, and looked back to the angry workers. “That was the captain. He wants to reiterate that this is an order.”

“What if we don’t follow it?” Ivan said. “We have a plan to deal with the meteorite.”

The docking bay’s air swished a bit, and Elizabeth noted that when the airlock opened, a shuttle was missing. She motioned to the empty slot: “How’d you manage a take off with Puff like this?”

“We just changed what the shuttle is carrying, but we followed Puff’s launch schedule.” Ivan said. “The shuttles, once launched, are always manually piloted and separate from the regular infrastructure.”

Ruterford tapped a message back to the captain with this information, because it would help she thought, with the evacuation. “So, what is your plan?”

“We replaced the beacon with a modified beacon,” Emma said. “We’re going to blow it up. The smaller impacts will dent the hull, but they won’t have the mass to cause enough damage to puncture. Plus, we’ll blow a lot of the energy and mass aside, which will miss the Drake entirely.”

Elizabeth whistled. “What if the beacon doesn’t work?”

“It will work,” Emma said, and the she sat down, linking arms with the rest of the pilots. “Give it a chance. If it works, we can go on with the mission.”

Ruterford pulled Elizabeth aside and the two conferred. They pulsed a few messages to the captain, who told them that insubordination would not be allowed. “Given the situation though, we’ll tolerate it until we get Puff under control.”

Tracking the shuttle was one of the few things that Sojaei and Setin’s instruments could still do, and the pilot was ignoring them. Red was on course, and he was feeling good. He was in the zone. When there was a dangerous job, you got Red to do it. Not because Red was the best, but because Red was cool under

pressure. The best could be unnerved; he was sangfroid personified. He didn't bother communicating back to the Drake, after all, they couldn't do much with Puff as it was.

He enjoyed his silent ride, as he moved to intercept the meteorite. Or was it an asteroid? He knew he couldn't call it a comet, or at least, he thought he couldn't. The fine points of astronomy were a bit beyond him. All he had to do in his job was navigate these pieces of modern machinery through paces no one else had ever been, and may never be again. And, who knew? Maybe someday they would make a map of his explorations and draw in calligraphic script, "here there be space dragons."

Earth-side tried to hail the shuttle again, and they heard the distinct click after a connection was bridged. Whoever was in there wanted to make it clear that he was choosing to ignore them. Sojaei tried again, but Setin began to scribble furiously.

"The shuttle is off the expected course," the engineer said. "He's going too close to the asteroid."

"We can communicate with the shuttles. That's big. That's news. That's like, a cellar door."

The shuttle kept moving until it shot around the debris, carefully weaving around to avoid any other small objects that might fracture the ship's delicate instruments.

"We might be able to bridge the new coordinates by sending it through the shuttle, then using that to springboard to Puff."

Sojaei watched as the space map they were using to view the asteroid field clipped for a second. That usually only happened when there were major updates. He snapped to get Setin's attention and pointed to the updated map.

"The asteroid, it split." The two men watched as the asteroid seemed to peel into two. One half remained on a collision course, but the second would clear the Drake without a scratch.

The shuttle pilot swore, not noticing the connection was open again.

"Pilot, this is Dr. Sojaei, what just happened?"

"The beacon was supposed to destroy the asteroid. Is it still going to hit?"

"Yes," Setin said. "The damage is going to be severe."

The pilot swore again. Then again. "Is she able to get out of the way yet?"

"No," Setin said. There was a silence on the line, followed by a swear. Then, the connection cut off. Setin and Sojaei tried to raise him up again, but there was no response. The map blipped again, and the two men turned their attention there. The asteroid had now been reduced to a fine spray of debris too small to be

picked up by the map. The shuttle was gone.

Bill Helmsley's radio didn't send him the news of Red's death. He barely was aware the danger the ship was in, except on a purely theoretical level. He had stopped by the medical bay, arguing that maybe Loman was feeling a migraine coming on. He had stopped to find that Leona was getting off duty, and asked if she wanted to come with him on a wild goose chase. "Besides," he said. "The captain says we should be using the buddy system."

He grabbed her arm and thought that maybe Loman might have headed somewhere nice and private. Who knew why, but it was as good a guess as anyone else. Besides, he wanted to be somewhere nice and private at the moment. She let his arm wrap around her and leaned in.

"Are you worried about what's been happening?"

"Security is on it," Bill said. "They've got some clues. It is only a matter of time, don't worry your pretty little head."

"I just was here for both the bodies," she said, shivering a little. He stopped at his dorm, and said he needed to grab something. He let the door scan him and his ID card, and the door popped open. He pulled her in and kissed her. She hesitated and then wrapped her arms around his neck. He felt her up on her tiptoes. He pulled her onto the bed, going slow.

For the first time in his life, Bill's mind drifted away while he was with a woman. It went back to Ilva and the badge. While he felt Leona's hair, ran a hand down her back, he couldn't shake that something was wrong with what Ilva was telling him. Something was missing. He pulled away from Leona, and gave her his badge.

"What?"

"Open my door, do it. Quick."

"I thought we'd want privacy," she said.

"I need you to do it, right now," Helmsley said, his voice suddenly uneven. She pushed away from him and let the computer scan his card. She gave him a look, and crossed her arms as the door opened, silhouetting her slowly angering figure. He pulled his tablet off the ground where he had dropped it and consulted with it.

"Yeah, right here. It says you used my keycard to open the door."

"That's exactly what I did," Leona said. "The computer scans the RFID chips we have in our uniforms

and arms so it knows where we are."

"I need to find Loman, now," Bill said, grabbing his sidearm from the desk. "Lock the door, stay here. Message the captain and Ilva. Tell them I need back up."

He stopped at the door, looked back and said, "I'm really sorry, but this is something that couldn't wait."

Orn was with the engineers and Pallas. They had set up a command room in Pallas's office, waiting for any news from the Drake. Charis and Lisa had been in and out, plugging in various bits of equipment to enable them to watch the unfolding Drake disaster. Lewiston and Elvis had retired to a private office to begin drafting the potential press release they would put out if the Drake suffered some misfortune. The waiting was the worst part, people always said, and it was true, Setin said out loud to no one in particular.

"There isn't a shuttle scheduled to launch for another half hour," Sojaei said. "Until it detaches from the Drake's network, we're not able to access it."

"Still no updates from the captain," Pallas said. "How much time do we have before the Drake begins the passage?"

"About an hour or so, I would say," Lisa said. "We've been scanning for any other large space debris. The Drake is in the clear for its approach."

"He's still ordering the evacuation," Pallas said after the computer beeped with a message. He fired off a strictly worded order to stay on course, but he knew it wasn't going to do anything.

"Ilva and I think that whoever killed Paul and compromised Puff wants the Drake to complete its mission," Orn said. "I'm just saying this to get it out in the air, no one did that on anyone here's orders, right?"

Pallas violently snuffed out his cigarette. "Don't be absurd Orn."

"I have to see suspects everywhere. It's my job."

Pallas shook his head and lit another. "People are too expensive to try and replace like that. Besides, I know the mission can still be successful. There's no need to revert to drastic measures."

Ilva and the two programmers made their way towards the mainframe at a brisk jog. Ilva knew he could get there faster, but he also knew that some of the crew had slacked off on the physical conditioning. They had passed several other groups moving to evacuation points or security teams conducting their routine

patrols. They entered the shuttle bay to find it silent and somber, much of the defiance that Rutherford and the lieutenant had seen earlier sucked from the room.

The doctor was sitting with Ivan, and the three ignored the scene. As they passed through to the other side, they turned down toward the main servers. The automated systems kept everything running smoothly, even before Puff had been compromised. People rarely had any business going in; when they approached the door it slid open for them.

“That’s not right,” Ilva said, “I didn’t punch in the security code.”

“No, that makes sense,” Peter said as he took point into the room. “Whoever needed access to Puff couldn’t use their credentials to get in. They probably changed the door to not require anything to open while they had Paul’s console up and running.”

“It would look suspicious if someone accessed here right before everything went haywire,” Ilva said. He gave a brief look around the room and was satisfied that it was secure.

“Ok, you two, get to work,” Ilva said. He radioed to the captain that the mainframe was secure. “We’re going to start a manual override of Puff’s system. If everything goes well, we should be able to return manual control to the bridge.”

Ilva kept vigil at the door, the sounds of frantic typing behind him helping to mark the slip of time.

When they saw the shuttle come to life on their semi-real time map, Sojaei clapped. He immediately dialed in to communicate with the pilot. “This is Earth-side; I’m Dr. Yossuf Sojaei. Who is piloting this craft?”

“This is Shuttle Fifteen,” came a crisp response from a woman. “I am on a standard beacon run, Earth-side.”

“We need you to open up the following communication ports,” Sojaei said. “We need complete access to your ship’s communication and network devices.”

“I can’t do that, sir,” the voice said. The ship maintained its route. Sojaei looked around the room, searching for help.

“This is Hector Pallas. Do what the engineer says. That’s an order.”

“And I’m the Queen of England.”

The office went quiet as they watched the shuttle reach its first nav point and deploy a beacon on a cluster

of asteroids. As the shuttle puttered off, the family became clearer on Sojaei's display. Confirming they were not in the Drake's path, he tried to raise the shuttle again. This time, the pilot didn't even respond.

"Well, there goes plan, what are we now, Lawrence?"

"Hello, let me try," Setin said, taking a position next to Sojaei by the communications device. "This is Dr. Lawrence Setin. May I ask who is piloting Shuttle Fifteen?"

"Emma Winston, sir."

"I thought I recognized your voice," Setin said. "You gave a presentation on the multi-worlds theory, didn't you? I mean, before you decided to pilot shuttles for the Drake."

"Yes sir, I did. One moment, I've reached my second nav point," she said. There was silence for a few minutes as another beacon was deployed. The dark spot around the shuttle it up on the map, showing another family of previously unseen debris. While Setin talked, Lisa and Charis confirmed that these new objects were not a threat.

"Do you happen to remember my work?"

"You're trying to relay impressionistic messages to deep space," the voice on the radio said. "It was a novel attempt at communication."

"Yes, well," Setin paused. He looked at the rest, then winked at them. "I wanted to try something new. A trick, if you would. See, right now, our messages are all coming from either Earth facilities or our unmanned satellites. What if that's why we're not getting any response? I want to put a human voice, so to say, on the voice."

"Haven't we sent human voice to space before?"

"Recorded human voices," Setin said. "Prescreened, tested, you know. But, what if we sent something dynamic? Unfortunately, we're having problems accessing the Drake. Your shuttle, though, is a bit independent at the moment. If you give us the data, we can give you a chance to talk to the world."

"Why didn't you ask that in the first place," Emma said. "I'm beaming you the information you need now."

Setin hit the mute and looked to the rest of the team. "While she's talking about whatever she wants to whoever is out there listening for us, let's try Sojaei's back door into Puff."

Bill Helmsley had never fired his gun in his life beyond training exercises. He always told people he had

been in some tough scrapes; if you got him drunk enough, he even believed it himself. But, now, with the gun resting against his hip, and his hand on the butt, nervously fingering the grip, he wondered if he should have taken his life more seriously. He had never really felt the need to be the one to do anything about something. That's what other people were for.

In fact, by all rights, he should have made a quick call to Ilva or the captain, then dove right back on top of Leona. His life was about the simple pleasures, and nothing was more simple than a beautiful girl. "Simplicity really is the only thing I always understand," Bill said out loud to no one in particular. He liked to talk to himself to keep his nerves steady. He sometimes recited simple mantras or silly things his parents said when he had to pilot anything in a particularly dangerous situation.

He held his phone up to contact the bridge, then lowered it again. "They wouldn't believe me anyway," he said. He took another corner and tried to keep his gait relaxed and normal. Some officers always wore their sidearms; it was one of the luxuries of rank. Just because he didn't normally wear it didn't mean people would think it was odd that he was wearing it now.

"What should I say to them," he asked himself in the reflection by an elevator. "Hi there, I happen to think Loman, our first officer, killed those two men. That's why he needed the access card. That's why we're not able to track the murderer's movements after he dropped the card. Because we can't ever track Loman."

It was crazy, but it was the only solution Bill could come to that made any sense to him. He had liked Loman, and he seemed like a nice guy. He was the sort of guy that you leaned on when things got tough. He wasn't the sort of guy you accuse of murder. The evacuation announcements had been stepped up in frequency; it was no longer just an advisory.

He caught a brief message that was coming from security: "If everything goes well, we should be able to return manual control to the bridge."

Bill continued making his search through the ship and then checked the countdown until the Drake entered the belt. The timer was quickly approaching zero. He wondered if it would be like in a movie, where the moment it hit zero, there was utter disaster, and any moment before that meant it would all be fine. He knew real life didn't work like that; they probably needed some time before zero to redirect the Drake.

His mind snapped back to attention when he heard Loman's voice cut onto the radio, "The captain is enforcing radio silence starting now; only those on approved channels will be able to access the communications networks. Please continue your work on the central mainframe in radio silence."

Bill pulled up the schematics for the Drake and redirected himself to the mainframe. If he was right, then Loman would be going there, to ensure that Puff continued operating on autopilot.

Sojaei tried to drown out Emma's explanations to aliens that humans were a "pretty great species, when you really get down to it." She seemed to have no real problem nattering on and on as she finished planting beacons. Each burst of light gave Charis and Lisa a chance to check their math and ensure that the Drake's course was ominous, but not instantly disastrous.

Setin was idly reviewing his incoming messages, half-hoping that maybe Emma's soliloquoy might get some previously reticent lifeform to respond back. While the engineers played with their various toys, Orn reviewed what Elvis had managed to get built so far. None of the angles or physical information gave him a deeper understanding of the murder. He left a message with the captain to forward to Ilva.

The Pioneer Program logo exploded to life with an angry Captain Smith: "Who gave the order for enforced radio silence?"

Pallas jolted up in his chair, "Captain? So you can get through to us."

"My first officer just cut off my ability to communicate with the crew, based on orders from me," the captain said. "An order I did not give. We are working on undoing the damage, but the order comes from a classification higher than I have. Pallas, send a cancel order to the Drake, now."

"I didn't contact Loman," Pallas said. He sent his override code, but the computer returned an error. "It says I have insufficient authorization to countermand the order. We'll talk about it and get back to you."

He hung up on the captain, with only a hint of vengeful glee. He turned to his engineers and snapped. "Ok, enough games with the shuttle pilot, did you get the new coordinates uploaded?"

"Some of them, but there's no guarantee Puff will accept the new orders," Sojaei said. "We'll only know once she docks and the Drake reviews her updated data to reconcile the two. It may reject her files and write them over with what the Drake has."

"Who has higher clearance than I do?"

"No one," Setin said. "That's why you get paid the big bucks."

"Could this just be another error from Puff's coding?"

"No, that order had to be given," Sojaei said. "An error wouldn't create a new user with a new classification. That's a deliberate, conscious action on the part of a user."

Orn stood up and put on his jacket. The others looked at him as he carefully returned his various tools and trinkets to his pockets and belt sockets. He clicked his smartphone into its holster and slid his cap over his head.

“Gentlemen, it’s been fun, but there’s nothing else we can do here,” Orn said. “I have a suicide report to complete, and I have places to be.”

“There are two dead men on the Drake,” Pallas said.

“And what do you want me to do? There’s nothing more we can do down here. We can pull together an after-action report about all the ways we could have prevented these problems, that’s about it,” Orn said. Lisa and Charis busied themselves as another beacon popped into life.

“What if Ilva has any questions about your investigation?”

“My investigation? Of what? Of a replica crime scene that may or may not be accurate?”

“Let him go, Hector,” Setin said. “If we need him, we can call.”

With that, Orn walked out of the office. Those that remained watched Pallas’s screen and the slowly moving Drake on their map. The waiting started again.

Gregor Loman had meant to be a reasonable man. Like everyone else, he had signed up with the purest of intentions. Everyone here wanted to go into deep space. Being with the Pioneer Program had been a badge of honor. They were the best of the best, and they managed to force their way through a variety of difficult situations just to get the Drake in space.

When he heard talk of striking the mission, he had tried to find reasonable ways to keep the ship on course. Rutherford, Logan and he had sat around working on new ways to map the workstations to let automation take over the tedious jobs. Even that simple, common sense solution had been rejected out of hand. It was enough to make a man livid.

His constant ideas and suggestions were ignored; it made him feel invisible. He walked toward the main frame, people moving around him without a second thought. He was the first officer, people expected him to be about with a purpose. He always had a purpose, and when he went to see Paul, it had been simple. He wanted to get him to back the automation plan. Things had gone downhill from there.

So, he had implemented his back up plan. It was clean. Carter was messy; he had made sure to stick around with Ilva to carelessly lean against walls and touch things that he wasn’t supposed to. If they found his prints or DNA, then it was just the doofus first officer screwing up their investigation. But now, it looked like there was another plan to cancel the mission.

He walked up to the automatic door and waited; when it didn’t open he used his hand to pry it open. “Chief, what’s going on here?”

“We’re trying to get Puff out of lockdown,” Ilva said. “I thought you’d be on the bridge.”

“I was. If you do that, the captain is turning the Drake around.”

“When we do that,” Peter said.

Loman turned around and closed the door behind him again. Ilva shifted, suddenly on alert that something wasn’t right. Maybe it was in Loman’s tone, or maybe closing the door was too different and unnatural. Ilva took a step forward, but he was too slow. Loman fired off a single shot that took Ilva in the face; the chief fell died mid step, his hand resting on his sidearm uselessly.

Peter screamed out and ducked aside; Mary jumped behind another server as a second shot from Loman rang out. The two looked at each other, eyes leaping with fear.

“I want you both to come out where I can see you,” Loman said. “I don’t want to risk damaging the computer.”

They could hear his steps on the ground, and they kept shifting, further and further away from each other. They kept behind the server boxes, trying to find a way out. Loman had a clear line of fire on the one door, and it was closed.

“You two are scientists,” Loman said, carefully checking a corner with his gun. “You have to understand what this mission means. We have to go through with it. We just have to!”

Mary only thought for a second about replying before she cut herself off. She wasn’t sure if Gregor was even able to be reasoned with, and she saw no reason to risk getting shot to determine if he was or wasn’t. The server room was set up with seventy some server banks, each row a perfect rectangle of high-powered computing devices. The only way in or out, Mary saw, was the single door that Loman kept covered.

The gunshot had been loud, but this was one of the first areas to be evacuated. The amount of power and energy needed to keep the farms running was second only to the artificial gravity devices. If they were compromised in some way, there was no telling what sort of damage could be done to the ship. It was one of the many reasons, she thought, Loman was being extra careful.

Peter crouched down and made a move between two of the rows, sighing with relief when he made it to his objective unnoticed and unscathed. He thought about being a hero; he even imagined a route that could take him behind Loman. Of course, Loman was moving, and he had a gun. “Put the gun down, we need to get the ship under control. The asteroid field is too dangerous to not have the ability to override the plotted routes,” Peter said.

A gunshot hit the ground near his feet, forcing him to abandon his position and dive to a new one. Loman tracked his movement and began trying to get around the servers to have a clear shot. “Once we clear the

field, we're fine," Loman said. "Think of what a ship like this could do! What we could discover. We can't throw that away."

The computer beeped, and the console's monitor began to scroll. Loman cautiously approached it, keeping his gun ready. He looked at the readout, then aimed the gun towards the door as he read it again. Then his gun wavered a little.

"They've changed the Drake's course through the asteroids," Loman said. "We're still on track though."

He was still looking at the new nav points when Bill Helmsley opened the door, swore, and shot wide.

As the Drake began to maneuver along the new points, the engineers in Pallas's office cheered. The new route however, quickly proved to have complications of its own. The original beacons had been used to inform the old route; the early part of the passage where the Drake was now was unaffected. However, as the route continued, it became more and more treacherous as it crossed a variety of dark spots.

"Captain, cancel that evacuation order," Pallas said again. "The route is now safe. There are a few dark patches, but you should be able to navigate them fine."

"I can't in good conscious continue this operation," the captain said. "I have too many unanswered questions. Not only that,"

The communication link shorted out. Everyone looked at each other. Lisa and Charis checked with the map; they then looked over to Pallas. "They're not in a dark spot. I don't know what's happening," Lisa said.

Pallas punched the command to reestablish communication, and the captain reappeared on the viewer. He was calling out for damage reports. He listened and there was a sudden flash of anger. He turned to see the communication was up again. "When you changed the nav points, what else did you change?"

"Nothing," Sojaei said. "We've got eyes around you; none of the debris hit the Drake."

"That was one of our shuttles," the captain said. "When you updated the nav points, you didn't change the patrol and landing protocols. A shuttle just rammed my ship."

Pallas's face blanched, and he looked at Sojaei for an explanation. The engineer fielded one gamely: "Landing is supposed to operated from the pilot's end. It should be based on the actual position of the Drake, not based on the estimated position. It had to be pilot error."

Some voices caught the captain's attention, and he turned away from the communications screen, eventually walking out of the frame entirely. Pallas tried to pull up the damage report for himself, but Puff

was still blocking their access. When the screen returned to the spinning logo, Pallas threw his cigarette at it in frustration.

He lit another and started to wait again. Nearly five minutes that felt like an eternity passed before the lieutenant appeared on his screen. She was neutral looking, acting almost indifferent about the report she was providing. “The captain has sent out a mayday to the Tereshkova, Ride and Amundsen. I have been instructed to inform you that we are being forced to abandon the Drake.”

“How bad is the damage?”

“Minimal damage; only a handful of casualties. If we had not been under an evacuation order, hundreds may have been killed,” the lieutenant said. “Now, if you’ll excuse me, I have announcements to make.”

The logo returned, spinning.

Leona had stayed in Bill’s apartment, a bit shocked as to what had just happened. Things had been going so well, and then he just stormed out on her. She was angry, frustrated and felt taken advantage of. He was such a nice, genuine guy, she thought, as she sat on his bed. She went through their last few minutes together, wondering if maybe she had done something wrong.

She was still sitting there thinking about it when the shuttle broke through the wall; when the incident report was filed back on Earth after the Drake’s voyage, her cause of death was listed as uncertain. Whether it was the actual shuttle’s impact or explosion that killed her was unclear; the depressurization was also a possibility. All anyone knew that of the sixteen people who died in the shuttle crash, she was the only woman killed in the men’s dorms.

The other fifteen people were six security guards making rounds, three of men helping to collect critical supplies for the evacuation, the two shuttle pilots, one of Leona’s co-workers sleeping in after his shift, a janitor who was refusing to comply with the evacuation order just yet, and Dr. Logan and the patient he was visiting. The patient had been overcome with depression after the recent spat of accidents and refused to leave his bed.

Melissa Farn felt the tremor from the shuttle’s impact. She was thrown across the room and managed to land on the ground without breaking anything. Emma’s commendation letter fell harmlessly on her head, and she pulled herself up as the alarms began to blare. The orderly evacuation quickly devolved into chaos around her as she left the room with nothing but the clothes on her back and the letter. It was a pretty silly thing for her to have grabbed, but she didn’t really have time to pick and choose.

She rushed along in her bare feet with the rest of the evacuees. Each of the dorms, and there were eight

scattered across the ship, had specific areas designed to be jettisoned in case the integrity of the Drake was threatened. Each separate capsule could hold a few hundred people safely, and they came stocked with clothes, food and water. “In the case of emergency,” the briefing went, “immediately evacuate. All your needs will be taken care of for you.”

She hoped that was the case as she joined the rest of her neighbors in the capsule. Some had been waiting there since the first evacuation warning had been given, and at least one of the women had a smug smile on her face. “I told everyone they wouldn’t issue an order like that if we didn’t need to evacuate,” she said to the newcomers. “Glad you could join us.”

Melissa ignored her, “Do we have a head count? Is everyone here.”

“We’re missing about twenty or twenty-five people,” said another woman. “We’re missing more, but we’ve cross-referenced with the other shelters and they’re accounted for there.”

“Do we have any guests here?” Melissa asked, she quickly stepped up to take charge. It was what she did in a crisis. “If so, make sure to get your ID scanned so that your shelter knows where you are.”

“What happened,” asked a security guard who has been in the area when the alarm rang. “It felt like an earthquake.”

“Well, that’s obviously not what it was,” the first woman said. Melissa shot her a glance to shut up, then spoke.

“The radio silence is keeping me from finding out, but it was an impact,” she said. “Maybe a meteorite or some other debris.”

They were still discussing what the other possible causes might be when the Drake shook again.

The shuttle bay was shaken in the initial impact. Some of the ground crew had been tracking the shuttle’s incorrect approach; they had tried to contact the pilot to correct the approach. Setin realized when he read that part of the report what had happened then; the pilot was trusting the automated controls. The radio silence kept the ground crew from getting in touch. Then, when the pilot realized the error, it was too late to pull up and out. Chen had been called in and provided some critical information: Seventeen additional crewmembers had been killed since the initial impact.

Setin tried to do some back of the envelope math, and he came up with about forty total casualties so far aboard the Drake, starting with Redmount. Almost one percent of the crew, he thought. Not too terribly high. Some cities suffered worse than that in particular bad years with disease and murder. If you went far enough back in history, this could be a statistical coup.

“The damage to the Drake could be severe,” Sojaei said, clicking through a variety of schematics at a frantic pace. “We’re getting some data back from Puff, but we’re also getting lots of junk.”

“The automated damage reports are spitting back everything again, aren’t they?”

“Could the Drake hold together?” Lewiston asked. She had not technically been invited to the briefing, but she had already been there when the others arrived. There was no reason to leave.

“We can’t get repair crews to the depressurized sections,” Sojaei said. “What’s worse, the damage has made it impossible to launch the next wave of beacons. We’re navigating the next dark patch blind, and we can’t stop the Drake. More impacts are inevitable.”

“Hector, you have to issue the abandon ship order,” Setin said. “If we don’t, we’re going to lose the whole crew. We can replace the ship, but-”

“The crew, if you’ll recall, are the expendable members of our staff,” Lewiston said. “We’ve got better candidates to field future ships. If we want to salvage the Drake, it is a risk we can take.”

Pallas glanced between his two advisers, then to Sojaei. The engineer shrugged his shoulder. “Frankly, given they’re in the middle of an asteroid field, they may die even if they abandon the Drake. There’s no guaranteed win.”

The communication tablet lit up; the bridge of the Drake was blaring with alarms and warnings. Pallas made a mental note that future bridge and command centers should be more subdued in an emergency. Even the stalwart captain was looking unnerved by the sensory assault that was telling him to panic. He looked to Lewiston and wondered what ergonomic reason there was for such a set-up on the bridge.

“You need to allow my people to jettison the escape pods. The shuttles can’t launch; we need to detach from the Drake to allow manual control to avoid incoming debris,” the captain said. It was now that Pallas realized most of the bridge crew had withdrawn; only a few of the seats were filled behind him, a few brave souls desperately holding the ship together and issuing commands until they were able to withdraw.

“Do what you must, captain,” Pallas said. “But, if abandoning the ship was not necessary, you’ll answer for it.”

“We need a command from Earth-side to authorize it,” the lieutenant said from off-screen. “We tried from here, but we keep getting a request for authentication.”

Setin swore, and pulled the tablet to face him, “Have you regained manual control? We can’t send any data up. There’s a workaround for it, but we’d need to get a shuttle out.”

“The shuttle bay is damaged,” the captain said. It was a flat, defeated statement.

Pallas looked at Sojaei and Setin, who shook their heads. “We tried every other way to issue an order to Puff. Using the back door by initializing a resynchronization when the shuttle rejoins the network is the only way.”

“I’ll go talk to the shuttle pilots, captain,” the lieutenant said, the captain nodded to his right, then settled into his command chair.

“The rest of you are dismissed; get to an evacuation pod and secure yourself for ejection,” he said. He then looked to Earth. “I’ll be here for when we get control to issue the abandon ship order with my token, and then I’ll make my way to an escape point.”

There was a murmur of disagreement, that even the team on Earth could hear. Pallas cleared his throat and spoke into the tablet: “You’ve all got your orders. Get to it. That’s straight from the head honcho.”

“Drake over and out; we’ll reconnect once I’ve got the essential functions routed through my console so I can take of everything,” the captain said. Once again, Pallas’s office was staring at their logo. Setin looked out the window into the sky, wondering where out there the Drake was limping along.

Ivan was still in the shuttle bay when the lieutenant arrived; she was pulling on her flight suit and shouting for him. He was helping to clear the debris; Emma had taken a group of the pilots and mechanics to divide up among the various shelters to ensure that each one had a critical capacity of technicians to fix any on-board problems encountered while they awaited rescue. Ivan, though, was not much of a mechanic. What he was, was a pilot. There were still several sections of the ship that may have been compromised or that might still house survivors.

They would need the shuttles for evac, and he was going to be here for them. There was just a question whether the shuttle bay itself would be there for them. The flight tower was useless; the launch schedule had been thrown off and Puff wasn’t allowing any more. Elizabeth, he remembered her name when she shoved a helmet into his hands.

“I need us out there, now.”

“I can’t. The airlock is shut tight, and even if we got out there, we wouldn’t be able to land again.”

“Get everyone here and get them in a shuttle,” Elizabeth said, raising her voice. “The captain has issued an abandon ship order, but we need to get off the Drake and land again to allow the shelters to eject.”

“That’s crazy,” Ivan said, as he snapped the helmet onto his flight suit. He kept it on most of the day, it was one of the most comfortable things for him to wear, something like a second skin.

“You’re the best pilot we’ve got, right?”

“In a sense,” Ivan said. “Red was the technically most proficient; I’m just willing to take risks.”

“Good, because we’re going to launch without the flight tower,” Elizabeth said.

“It won’t open unless a launch is scheduled,” Ivan said.

Elizabeth shook her head. “There’s a second time it would open, as a countermeasure for a fire. Once everyone is secure in the shuttle, we’re going to use the shuttle’s engines to start a fire. When the air lock opens to suck the oxygen out and control the fire, you need to launch.”

“That’s suicidal,” Ivan said slapping the lieutenant on the back. “I absolutely love it. Boys and girls, get aboard, we’re going to blast off in the most traditional way ever.”

The crew piled oil drums and fuel near the shuttle. What little cardboard and papers they had was scattered around the shuttle. It took only fifteen minutes; Elizabeth thought she heard a gunshot. Ivan looked at her, and she shook her head. Whatever it was, it wasn’t as important as this. Security was out in force, along with emergency response crews leading people to the shelters. She didn’t have the luxury of being distracted.

A total of seven people crammed into Ivan’s shuttle. It was roomy enough for the short trip that Elizabeth had planned, but in the back of her head, she knew if they couldn’t land again, it was going to be a rough trip back to the Tereshkova or Ride. Ivan put out a slight burn, and the shuttle began to accelerate. He tried to control the speed increase, yet he needed to get away from the sudden gout of flames.

The heat shielding on the shuttle protected it from the worst, but direct fire had never been part of the design specifications. He worried what the damage would be as fire licked the side of the shuttle; the alarms were sounding, piercing into the shuttle like a shrill shout. They heard the doors to the shuttle bay slam shut, containing the fire.

An announcement ordered any crew to engage their magnetic equipment and strap on their masks. It was a drill they had practiced a few dozen times; strapping themselves onto the Drake and prepping their own personal oxygen supplies in preparation for the sudden vacuum. They had done some test runs on Earth, and it was a dangerous procedure. Each procedure “killed” at least one member of those trapped in the shuttle bay whenever it happened. The engineers said they weren’t going to get anything better, and they had simply extended the time for people to prepare and delayed the time between the shuttle bays being segregated from the rest of the ship.

That had lowered the overall casualty count, but people were still not able to provide a 100 percent safe evacuation. The engineers had declared “good enough,” and decided to focus on preventing fires. That approach now enabled Ivan to watch the airlock spring open. Something smashed into the back of the shuttle, causing him to lose control. He felt it bounce along the bottom; Elizabeth felt a crewman crush her against the wall with a “Sorry lieutenant!”

The extra speed caused Ivan to rocket out of the Drake, and he barely managed to correct the course away from the stream of debris spilling from the shuttle bay. Once clear and safe, they counted off. The worst damage came to Elizabeth's pride as she pulled herself out of someone's lap.

"Alright," Ivan said. "We're up. What's the next part of the plan?"

"Contact Earth-side," Elizabeth said. "They've got a message we need to get to Puff. Hope everyone's ready for our happy landings. And move over Ivan, I'm taking the passenger seat."

Bill saw the bullet flying wide as soon as he pulled the trigger. He leaped aside before he even registered the ricochet off some piece of computer hardware. Loman's shout was one of surprise, not hurt. Bill had learned the difference over the years.

He kept himself low to the ground, favoring his right. He tried to hear which way Loman moved, but there were other people in here. He took a moment and tried to think if his reasoning could be wrong; maybe he had shot at the wrong man.

"He went to the left," came a woman's voice. Bill didn't recognize her, and he knew most of the women on the ship by voice. At least, he thought as he covered his left and tried to circle around, the pretty ones. Maybe he'd make sure to celebrate with a coffee with this mystery girl after he got out of this mess. He tried to think that's what James Bond would do, because right now he needed a positive attitude.

"He shot the security chief," another man said; a voice that Bill knew wasn't Loman. Working so closely with the big man suddenly had an interesting advantage.

"Is he dead?"

"I don't know; I can't get out to him."

Loman leaned around the corner and sent a bullet flying. Bill scrambled aside, knowing that Loman's aim was off. He fell around the corner, seeing where the bullet struck and stuck in the wall. He returned fire, realizing even before he did that Loman was back in cover. He tried to put more space between them and work his way towards the friendly voices.

How many shots do I have left, Bill asked himself. He thought of checking his clip and decided against it. That's a good way to get caught with your pants down, he decided.

"Let's just act like I've only got one or two left," Bill said to himself as he made a hand gesture to the woman to stay down. She mouthed to ask where Loman was, and Bill shrugged. "Of course, he might be low on bullets too," Bill said. "But, I really don't want to play fisticuffs with someone that much bigger

than me who hasn't just recovered from a bad accident."

Bill looked over the computer server, scanning the room quickly. He caught sight of the security chief's body on the floor and ducked again. "Yeah, that's a dead man," Bill said in his head, moving to a new position in case Loman saw him take that peek. He was still trying to find a better angle when the ship shook violently; the woman pressed against the wall to keep her balance. Somewhere, someone else fell.

Bill kept his balance, and quickly moved to cover the hallway he had heard the body hit the ground. He saw one of the programmers standing up, and motioned for the man to get behind him. Bill moved down the hallway in a crouch, with his gun pointing, his finger twitching, preparing to squeeze. The alarms began to sound throughout the ship.

"Shit, we've been hit," Bill said out loud. He was trying to decide what his next move should be when he heard someone shout for him to get down. He jumped prone, twisting around to see behind him. He hit the ground with a thud, and heard a bullet sing.

Beaming the message up to Ivan's Shuttle (he had redubbed it Shuttle One, because he hadn't had time to determine which one it really was), was child's play, Lisa said as Setin and Sojaei watched. Her and Charis passed tasks to each other, and they also helped keep an eye on Ivan's route to ensure it remained clear.

"He should be able to give the captain the ability to issue the order now," Setin radioed up to Pallas. The man was alone, now. Watching as the captain sat in his flashing bridge; Pallas wondered what he looked like to the captain. Here, in his ornate, almost opulent, office. Cigarette smoke heavy in the air; was the resolution good enough to even make that out?

The two men had been staring silently at their communication devices, waiting for the word from Setin. Pallas acknowledged, then shut off the rest of the world except for the captain.

"I've just been given word: Once that shuttle lands, you should be able to evacuate your shelters. I've got the Ride, Amundsen and Tereshkova on a rendezvous to conduct search and rescue."

"We've lost another section of the ship," the captain said. It was a defeated voice. "There were still maybe fifty people there, trying to lock down the section so that the damage couldn't compromise anything else."

Pallas lit a cigarette; he looked at the tablet and was surprised as the captain lit one too. A smoke alarm went off on the bridge, and the captain just looked at it. For a moment his bemused smile returned, "Well, I think I'll ignore that one too, if that's alright you with."

"I took the batteries out of mine," Pallas said.

“Don’t take it personally, Hector,” the captain said. “But, you’re alright for an asshole.”

“I’d never dream of taking offense to that,” Pallas said. “If you’ve got some brandy or scotch, let’s have a drink while we wait.”

The captain produced a small flask from an inside pocket. The two men toasted each other across the network and drank. The captain tossed the flask aside; after a second Pallas said “screw it,” and flung his shot glass across the office as well.

Ivan’s landing left a lot to be desired, Elizabeth thought, as she pushed herself off the dashboard. Everyone waited for the shuttle to resynchronize with Puff. There was a slight delay, then, Elizabeth felt a sinking feeling in her stomach. She barely had time to take her helmet off before she was sick with the sudden lurch.

Bill felt the bullet rip into his arm. He squeezed a shot off as well. He knew it hadn’t hit anything. He tried to steady his aim, but the pain and fear were overwhelming. “I’m a dead man,” He thought. Then the lights flickered. He felt the familiar feeling his head, and he wrapped his wounded arm around the bottom of a server and held on tight. When the full feeling of weightlessness hit, he heard Loman yelp in surprise.

He wasn’t sure what happened, but he knew what was about to happen. He hooked his legs around the bottom of the server and waited for the gravity to kick back on. When it did, he felt a brief thud as he dropped the inch or two he was off the ground. He heard a snap where Loman fell. Half sitting up, he squeezed two shots off at where the first officer had fallen. Then he snapped another one, just to make sure.

He pulled the trigger a few more times, but nothing came out. Loman had broken his leg on the landing; the three shots had riddled his shoulder and head. Except for his extreme height, there was no way to recognize the body before them as the first officer. Bill stood up, leaning against the server.

“What happened,” he asked, cautiously walking toward the console where the two programmers were regaining their footing.

“We did a hard reboot,” Peter said, as Mary pulled him to his feet. “We prepared ourselves, and we knew the captain had taken precautions against a failure in the artificial gravity. When we heard you scream, we thought you were dead.”

“I thought that we could stop Loman,” Mary said. “And then escape and lock him in here.”

“Well, you gave me the minute I needed,” Bill said. He sat down while Peter wrapped his bleeding arm.

“It’s not as bad as it looks. Besides, my girlfriend is a nurse. It’ll give me an excuse to spend some quality time with her.”

“That code is an abandon ship code,” he said. “Let’s get to the nearest shelter, and fast. Once the radio silence lifts, I’ll let the captain know what’s happening.”

“We still need to get manual control back to the crew,” Mary said. “I think we can do it from here.”

“Once the shelters eject, the ship is not going to be safe and sound,” Bill said. “We have to get going, now.”

“You two get going,” Peter said. “Ladies and the walking wounded first, after all. I’ll catch up once I get control back. You can’t help me here Bill, and there’s only one console.”

Mary hesitated for a moment, then Bill put his good hand on her shoulder. “One of you can’t be a hero here, I need someone to help me in case I lose too much blood. So, before that happens, let’s get a move on.”

Mary gave Peter a half hug, propped Bill against her and made her way out of the console room. Peter turned to the keyboard and cracked his knuckles. “Alright Puff, let’s do this.”

Pallas watched as the captain rose out of his seat, a surprised look cutting across his face as he slammed back down. The alarms cut off, then kicked back on again. He retrieved his cigarette from the ground and shouted into his radio: “What just happened?”

Puff’s voice came over the speaker: “I am sorry captain; a manual reboot was issued from the control room.”

“We have manual control again?”

“Yes sir,” Puff said.

The captain hesitated, then ordered the Drake to abandon ship. He provided his authentication code, and from Earth, Pallas provided his. He did it begrudgingly, and he watched as the captain rubbed out his cigarette on the captain’s chair. Pallas heard the countdown begin, and gave the captain half a salute as the man started to make his way to one of the shelters.

According to all of the simulations, Hector thought, as he turned off his connection to the empty bridge, the captain should have a buffer of five minutes to get to the closest one before it blasted off. Pallas took another shot of scotch and took a final drag on his cigarette. He took the nub and the empty carton, and tossed them off his balcony. He looked into space, imagining he could see each of the shelters slowly

drifting away from the Drake until one her sister ships recovered them.

He sat down at his desk, loosened his tie, and hit the intercom. “Send in Dr. Lewiston. I'm ready to hear what she has to say.”

~ The End