

Slumber's End



S. Kaldager
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Slumber's End

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Author S. Kaldager

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To my surprisingly patient wife

1



Ken

Back during his time at uni, one lonely sleepless winter night, Ken had written two words on the top of a sheet of half-crumpled printer paper and circled them carefully: *DIE HAPPY*. He'd been twenty-five, and that winter he'd been experiencing his first real brush with failure. Whenever he opened his thesis draft file he found himself doing nothing but endlessly revising the formatting, or fiddling with the preprocessor, or refactoring his LaTeX macros, or at best rewriting the opening paragraph. A term and a half into his degree he had to admit he had made no real progress at all on his thesis, if he was being truthful with himself. He'd grown to prefer avoiding being truthful with himself. His meetings with his adviser were growing ever more tense, and he found himself avoiding them as well. It was not so much that he feared the *consequences* of failure. Rather, as a young man whose talent had exceeded his ambitions for his whole life thus far, the mere fact that failure was now suddenly very much on the table had been a revelation about himself that had been hard to take. It had shaken his self-image and made him wonder who he really was and what he really wanted.

It was in the interest of resolving this question that he'd written those two words on the paper. Ken was a man capable of both great disorder and bursts of brilliance that had carried him comfortably through his life so far. When the disordered part of his mind had grown great enough to threaten to overwhelm the brilliance, the only

thing he could turn to to clean up the mess with was his logical mind. He'd resolved that he needed to make a system. A plan. A tree. A graph. These things he knew how to navigate, how to organize, how to optimize and plot a course through. At the root of that tree he needed to put his goal. What did he want? He certainly really didn't want to die, but he figured that at some point he would have to. What would he want then? His ultimate goal, he'd resolved, was simply to die happy.

The graph had become vastly more complex by the time the sun rose and interrupted his efforts. He'd needed to tape together several more sheets of paper to accommodate the messy graph of goals and subgoals that he'd dumped from his mind onto the paper. The first things he'd written on there, of course, had been completing the thesis and getting his degree. But a few hours later he'd later surprised himself by turning those solid edges into dotted ones, the nodes from hard requirements into means to an end. It wasn't a degree that he actually wanted. He wanted to not be lonely. He wanted somewhere to call home and someone besides himself to inhabit it. He wanted a quiet comfortable life. He didn't need acclaim or glory, but he wanted the respect of his peers and above all his own. Beyond that he needed the means to make all that happen, which he supposed necessitated certain mundane realities like money, and a job, and the social skills to actually talk to people.

When he later thought back to those days, with enough distance for a comfortable ironic detachment, he'd refer to them as his "quarter-life crisis". He only vaguely remembered the graph. It was the first two words that stayed with him.



Ken never finished his thesis, but ultimately he didn't really mind.

Over the next decade, though the physical graph was lost and its particulars forgotten, he made steady progress through it in a shambling sort of way. He found his way into software engineering. He found a group of friends with whom he could share his thoughts and ideas and worries. He found that some of those ideas were good. He found himself in the right place at the right time and that there were people who appreciated what he could do.

He met Luce off an app in the spring of 2025 and they clicked. They saw the world in a new way together, and it seemed brighter and friendlier. Their minds and their bodies meshed together in a way that he had not experienced before. Faster than he'd expected, their lives intertwined. They moved in together in a little flat near Warwick Avenue.

Years passed, and through their ups and their downs, their bonds emerged stronger. They got married. They found themselves able to move into a little townhouse near Putney.

In 2027, Luce gave birth to their son, and they named him Ryota. He consumed their lives and they were happier for it. They struggled through sleepless nights and messy diapers and found joy at the end of those struggles. Ryota learned to crawl and to babble, to walk and to talk. They saw him grow and learn. They saw him crawl and toddle and run and climb and fall down and get up again. They saw him babble and laugh and sing and read and think.

Ken was perfectly aware that he'd been lucky. He was under no particular illusion that he deserved the life he had gotten. He wasn't entirely sure that he knew what deserving meant. Deserving or not, it had become his life. Even through the occasional slings and arrows that everyday fortune threw at him, enjoying it came as effortlessly to him as anything had ever come to him before, and the satisfaction he felt in it felt as deep as anything he had known.

When he thought back to the graph he had made in his university days, every need he could remember enumerating had been met. He had found his companion, he had found his home, he had found his quiet comfortable life, and he had found his family. He had reached the root of the tree.



In the spring of 2038, he came down with a fever. He called in sick and spent a week bedridden. Yet even from his week of rest he emerged more fatigued rather than less. His bones and his joints ached. Luce walked with him to the doctor and sat with him in the waiting room. They tested his blood. By the time the tests were ready, he had lost his appetite and his skin had become blotchy and

red. Luce sat with him and held his hand as he talked to the doctor. He was diagnosed with acute leukemia, cancer of the blood.

For half a year he was in and out of the hospitals. He no longer needed to wait long for his appointments. He lost his hair from the treatments. Ry came to visit him for his overnight stays. They all cried together and they all cried apart. He had his good days and his bad days, his good months and his bad months. When the doctors had results to deliver, Luce was there with him. They cried together with joy for the good news, and with grief from the bad news.

They struggled with his illness together and the struggle took something out of them in turn. On his good days, he was thankful for all that he had. He was thankful for Luce and for all that she did for him, for Ry who came to visit him, for the doctors that they had the good fortune to be able to afford. On his bad days, thinking about all that he had to be thankful for in life only threw him into deeper despair. He despaired that he might lose it all: lose Luce, lose Ry. He became convinced that he *would* lose them. He became resentful and difficult and irritable. He snapped at Lucy. They bickered. On his better days, they made up.

More and more time passed between the days that he heard good news from the doctors.

One winter morning he awoke with a terrible clarity and knew that he was going to die. In his aching brain and his weary heart, he knew that he would never see his forty-second birthday. He lost the hope that he had held onto but gained instead a kind of peace; an acceptance. Through the sadness of losing all that he was to lose, he felt also the joy of having had it. He thought about Lucy and he was happy for having known her and for all that they had shared together. He thought about Ry and he was happy that Ry would live on and for the part he had gotten to play in his life. He thought that he might indeed die happy.

He spent a long night with Lucy. They held each other tightly and they cried and kissed and cried again.



When it became known among his family and friends that he was going to die, the visitors he received took on a new character. The

visits became *final* visits. Instead of encouragement and desperate hope there were goodbyes and fond reminiscing.

He never learned for sure which of his work friends had left the card on his nightstand, but he suspected it might've been Brian. A weird enough guy that he might feel it was his place to suggest end-of-life options to a dying acquaintance, and enough of an introvert that a card left wordlessly on the nightstand how he'd do it. *Endymion Cryogenic Labs*, the card read. Brian was a bit of a sci-fi nut. A bit tasteless to bring it up right now, Ken thought, but he meant well. Just like everyone who'd talked to him about reincarnation or about heaven. He tossed the card aside.



The next morning he awoke with a righteous annoyance at Brian. He'd been feeling all zen already, who was fucking Brian to come and bring his tasteless inappropriate sci-fi bullshit into it? This was serious. It was real life. It was *his* life.

Slowly, he realized that behind his righteous annoyance was a niggling doubt. What if there was even a one-percent chance that it *wasn't* bullshit? Could he be sure?

This was sort of Pascal's wager, but it wasn't the supernatural one where the easy counterargument was that only one out of an infinite spectrum of possible contradictory afterlives could be actually true. It was simply a case of a mundane hypothesis, a matter of matter: the idea that the body could stay alive through cryogenic freezing, to be unfrozen sometime when the disease could be cured.

What did he have to lose? He'd be dead. Dead couldn't get any deader.

What did he have to win? He could live to be forty-two and alive and healthy. He had half his life left to live! Surely they'd have a more effective treatment in, what, fifty years? A hundred? If he was lucky, he could see Ry again!

By the end of the day, he had come around completely. What he had to lose turned out to be just short of ten thousand pounds. That wasn't nothing, but he did indeed have that sum in his savings account, and he knew that Luce and Ry would be able to get on without it. That sum was supposed to cover the cryogenic freezing

treatment itself, biostorage “in perpetuity”, as well as serve as pre-payment for the eventual thawing treatment. An asterisk pointed to a footnote in dense legalese which remarked the eventual thawing treatment was a *hypothetical* thawing treatment. Under normal circumstances such a hedge would have given him pause, but in this case he found it hard to overcome the idea that the potential upside was life and the alternative was certain death, and that threw off his entire calculus. By the time he learned about the costs and the caveats, he had the fervent belief of the newly converted, and felt that this was a small price to pay for the possibility of life after death.



Legally speaking, cryogenic freezing was considered to be assisted suicide. Since as of 2038 there was no known way to revive anyone after freezing, he would be considered legally dead at the moment that he underwent the treatment. Luce would be widowed. Ken had signed consent form after consent form. He'd been visited by doctors and lawyers and psychologists who verified that he was of sound mind and aware of the situation and the consequences and making this decision of his own free will.

It was December 20, 2038, and the event he'd asked Luce and Ry to attend was essentially his own cryogenic cremation and funeral. They'd held a larger event the day before, a strange sort of a wake where he'd seen all those people who had come with their final goodbyes for their *second* final goodbyes. It was a strange party, a funeral with the deceased present, where the funeral guests felt obliged to also treat it as part celebration of the rebirth that would supposedly come. He knew he was being treated like someone who has gone a tiny bit mad in their final days; that his friends and relatives and acquaintances were indulging him in a zany desperate belief—hardly any one among them actually believed there was any significant chance he would ever wake after going into the pod. Brian was the exception: he'd smiled as he'd given him his final handshake, and pointedly wished him good luck in the future.

Luce and Ry and he had decided that for them, the 19th would be the day for mourning and 20th would be a day of hope. A day of saying goodbye, a day of parting, but not a day of mourning

and death. Luce and Ry believed, a tiny bit at least, he thought. If they didn't, at least they treated it with the respect owed to the deeply held belief of a dear loved one.

They still cried, all three of them, when it was time to say goodbye.

He and Luce had prepared formal goodbyes. To make them remember what to say—not to feel the regret of having left some loving word unsaid once it was too late. To make sure that they would find right words. He had wanted to not merely tell Lucy that he loved her, but to call her the love of his life—which was a simple truth, of course, but one seldom spoken. He had wanted to thank her for all the days they had spent together. He had thought that he should speak something with an air of formality to release her from her wedding vows as he left her. He had thought he should wish her well for the years that would come to her, and not to him. He had wanted to tell Ry that he was his hope and his pride and his joy. He had had all these thoughts and he had committed them to paper in beautiful, somber, poetic words, like little speeches or wedding vows or loving-kindness meditations, but when the time came to speak them it did not feel like a time for anything so stiff and formalized. The planned words were too heavy. They would only weigh them down.

Instead he kissed Luce passionately and held her for a long time after, and he promptly forgot all about the words he had meant to say.

“I love you, Luce.”

“And I love you.”

“I am so grateful for the time we had together. I know you'll take great care of Ry.”

He turned to his son.

“Ry. I love you so much.”

“I love you too, dad.”

“I'm so proud of you, Ry. I'm so sad that I won't get to see who you'll become, but I know you'll be such a great person.”

“I'll miss you too.”

“And I know that sometimes it'll be difficult and I won't be able to be there to help.” He gave a soft sob. “But you'll get through it all,

okay? Ma will help you if she can. And if she can't, you just have to remember that everything gets better, okay?"

"Okay, dad. I'll remember that."

"I'm so sad and so sorry that I have to leave you both. I'm so sad that we have to say goodbye here... but I guess we do."

From that point on there were hardly any words at all. They just fell together, all three of them, in a hug that was deep and warm and loving. They felt the warmth of each other's bodies and they felt the vibration from each other's sobs. The hug felt like it ought never to end, but eventually it had to. When they let each other go, the visor of the pod snapped shut and Ken began to hear the low hissing sound of sedative gas filling the pod. He smiled at Luce and Ry again through the visor.

"If I must die, I will die happy," he thought. He breathed deeply and tried to give them a brave smile, but he was unsure whether he succeeded. Then his lids became heavy and he drifted off into a dreamless sleep.

2



Yun

It was a flash of excitement rather than one of panic that Yun felt the need to suppress when she first saw the alarm light. The Mingghan had been stationed in the Ilmatar system for close to half a year. Although safeguarding the neutral zone was a vital mission and even a prestigious one, only operational exercises had given her any relief from the tedium of everyday management of the massive ship. Nevertheless, adrenaline would cloud her judgment. Throughout her career she had found that above all else calmness was the soldier's virtue in this age: calmness even when every second counted. Two of them had passed since the alarm had triggered. She reached for a chewable in the pocket of her uniform with her right hand as she acknowledged the alert with her left.

The alert had been triggered by a distress transmission from a friendly in the Benzaiten system, deep in the neutral zone. Munin-079, a small observational platform with a crew of three. One among thousands: the eyes and the ears of the Coalition across the galaxy. Broadcasted to all Coalition major military vessels, the transmission appeared to have reached the Mingghan first, with a light-delay just short of ten minutes. It consisted mostly of automatically generated black-box data—logs, maps and charts already unfolding themselves across her display, incrementally annotated by the Mingghan's knoma systems highlighting points of interest—in addition to a video

message. Most of the information in that clip, she figured she could glean from the runtime: seventeen seconds. It wouldn't be good.

“Aru, prep the war room.”

“Affirmative, ma'am.”

She put the message up on her primary. “Deviations in Benzaiten close to the Varuna gate. Merchant ship just went hot, designation..” The metadata identified the nervous young officer speaking as Lt. Lucia Stepanova, signals officer second grade. She glanced off to the side and interrupted herself mid-sentence as her confusion turned to panic. “Shit! They're firing at us! We have incoming! We—” A male voice shouting indistinctly in the background—surprise turning to anger turning to fear—then an abrupt end to the transmission. On her secondary, the knoma had already figured out the rest of the story from the black-box data.



Damir shot her a stressed glance across the table, looking over the seats that were still empty. Her XO had many fine qualities: he had a keen, decisive mind, and had several times shown remarkable judgment, but patience was not one of his virtues. These things could never happen fast enough, but she disapproved of the tendency he had to let his aimless annoyance be so clearly readable in his facial expressions. In her mind, it was when all was chaos that it was most crucial for Command to be an implacable font of tranquility that could flow downwards throughout the crew. Commentary should be left for the review. Though Damir's commentary was of the nonverbal sort, even that was unbecoming for the XO on a ship like the Mingghan. Empty seats aside, with the arrival of Rafaël, her Head of Intel—at a brisk run, with one of his two attendant advisors stumbling over the doorstep as she followed with her nose buried in her terminal—the key crew were assembled and they could begin. She turned to Damir.

“Captain Kato. Situation report, please. I'm sure we've all seen the alert, but get us all on the same page.”

Damir cleared his throat and began. “We have received a report that twenty-one minutes ago, one of our ships, the Munin-079, was attacked and destroyed in the Benzaiten system.” He gestured

to the animation on the primary display showing the progression of the events. “The crew was caught by surprise and unable to identify the attacker, but the record speaks clearly.” He gestured towards a black shape marked with a question mark on the map display and zoomed in on it with a gesture. “This ship—having entered Benzaiten from the Varuna gate two hours prior identifying itself as a commercial transport enroute for Osanyin—well, a transport ship it is not. This is a warship, employing some fairly advanced stealth tech to hide that fact. Rafaël, yes?”

Rafaël spoke up in his nasal droning voice. A deeply irritating fellow on a personal level, but he was careful and thorough, and his information had seldom steered her wrong. “The ship appears to be a heavily modified Padisate light assault frigate. A class-three coilgun, as I'm sure we all saw. Intelligence indicates that this is likely to be the Zulfiqar, owned and operated personally by Maseh Yitzhak eben Chevalier. A noble of high rank but so far no great distinction, but he *is* one of the many children of Madoh Hassan eben Chevalier. Powerful and well-connected family. Closely tied to the very highest levels of Padisate governance. Their primary seats of power are mainly around the Kubera system.”

“So, the Pads are taking Benzaiten? Does this mean we're in a shooting war?” Sang-mi Lukoki, Head of Navigation. Brilliant girl, but impulsive. She ought to know better than interrupting a briefing.

“Not yet clear, Commander Lukoki. Damir, go on.”

“Yes, admiral. The ship—the Zulfiqar, if we go by the intel—was following a course in between the two gates that let it pass closely by our sensor ship. At the closest point, and with no warning or transmission of any kind, it powered up its coil and fired on the Munin-079. The Munin crew became aware of the situation too late to properly initiate evasive maneuvers. Direct reactor hit. The Munin was a light sensor ship. Destroyed instantly, no doubt. We're blind from here on out. Yes, Kanat?”

“No support? Zulfiqar was on its own?”

“As far as we can tell, yes. Even the Pad sensor platform in Benzaiten—Munin's evil twin, as it were—made no adjustments to its flight path. No visible coordination with the Zulfiqar. Of course, whoever planned this operation would be well aware that we would

be blind from here on out. Every other ship in the area appears to be genuinely commercial traffic, but even if they were not, there are none with a ship class that could hide a significant amount of force. Admiral?"

"Thank you, Damir. Orders. Jumoke, combat mission procedures. Abort all EVA operations. All civilians onto evac shuttles."

"Yes, admiral."

"Sang-mi, calculate our options to get us to Benzaiten."

"Got them ready to present already, ma'am!"

"Calliope, establish comms with command on the Coalition side of every relevant gate through Pomona and Osanyin."

"Affirmative, Admiral. Still waiting for Pomona-Benzaiten, for the other three we have lines open already."

"Mr. Kanda Kim. Our legal mandate here?"

"Crystal clear," Yohan began in his collected, confident baritone. The man might have one foot in the civilian world, but she liked him. "A coalition ship was attacked in the neutral zone. Under the applicable treaties we have an unassailable right to enter the neutral zone in force to establish order. For an incident this far from central, it is coalition policy that the closest capable force with an admiralty-level command—meaning us—has a duty to act autonomously to do so."

"Thank you. Sang-mi, tell us how we can get there. As fast as possible, of course."

"Yes, ma'am." As she spoke, one of Sang-mi's people cast a strategic navigational map up on the primary display. "This is a qualifying emergency response event, so we have the right to demand exclusive use of even the neutral-space gates. Given the need for speed here, that's the only option that makes sense and could get us there in roughly 29 hours. We'd reserve a gate-pair for twisted high-velocity passthrough, then do a torch burn through it. Not cheap, not comfy, but by far the fastest way. We'd reach about 10 millics, very fast, but safe in our travel configurations. We'd be entering Benzaiten hot at that speed. Slowing down would, well, slow us down. Our fastest route is through Pomona—150 clicks to the first gate and 380 more to the second. After ramp-up, we'd be doing a

steady burn at our rated max of just under 3 gees. We'd be there in 31.6 hours. Osanyin would be just a tiny bit slower."

"Good. Damir, make the preparations for the Pomona passthrough. Have it ready to go on my command. Rafaël, assuming we get there in 32 hours, what sort of company could we expect? Worst case, please."

One of Rafaël's tagalong intelligence wonks punched some parameters into his terminal and handed it to Rafaël. "There is of course some uncertainty when discussing fleet positions within enemy space," he began in his nasal drone again. "But unless several independent networks have been compromised, we do have a fair idea about the notable deployments in the region. Conservatively, within four hops we could have up to ten frigate-class ships, three heavy cruisers, and one battleship, the Livyatan. Worst case is they all show up, along with a small host of smaller support ships that seem unlikely to matter much. I have shared the details with Commander Ismailov."

"Kanat, then. You have an assessment ready of the opposing forces?"

"Yes ma'am. The Centurion will be heading for Pomona to provide support if we request it, but frankly, there's no need. We could take 'em alone without a problem. Coming in hot only gives us more options, really. Semi-autonomous swarm formation with knoma coordination, we'd most likely take out the Livyatan within fifteen seconds or so of reaching our engagement range. After that it'd just be mop-up. Three nines says we'd lose no more than three modules." Kanat grinned. A burly fellow, he was the sort of man who very much liked to be the one with the biggest gun. He was remarkably lucky to also have the sort of tactical mind that had landed him the perfect position to satisfy that urge.

"Of course, it wouldn't actually come to that. Pads have sims just like we do. They see us coming and they see those odds, they'll turn tail and run away." It was almost a sigh. Sometimes it seemed like Kanat regretted the decade of relative peace they'd been enjoying. Ever since the Mingghan entered service, no one sitting on the kind of hardware needed to challenge her had been mad enough to risk it. Certainly the Padisate as a whole could muster a fleet that

would challenge it, but the Pads had no single ship that could compare. The Mingghan was something more than a battleship, but so far all her engagements had amounted to something less than a battle. More than anyone else among the senior staff, the Head of Tactical did his most of his work in the sims.

“Good. Sounds like we have a plan, then: burn through Pomona and secure the system. If anyone has relevant information we have not yet considered, speak up now.”

Yun took a few seconds to scan the room. Silence. It was a solid plan, she felt. They'd be making the best of a strong position.

“Then we are committed. Captain Damir, you will begin executing the Pomona burn as soon as you have confirmation that all EVA missions are back aboard. Don't wait for the evac shuttles, we'll send them off at speed. Go.” Damir saluted smartly and strode out of the room.

“Calliope, this is a major autonomous operation with potential diplomatic consequences. Prepare a report for central command as well as a public statement. And, of course, ears open for any fresh information about what's going on here.” She nodded.

“Everyone else, get your people ready for a long hard burn. Dismissed.”



A few minutes later Yun felt the loss of gravity as they reconfigured themselves from spindle formation. Her magboots engaged for a second, and she felt the mildly disorienting acceleration of the thrusters repositioning the command module. Then the burn started off at a single gee, and the boots released. So far, comfortable.

Her terminal beeped with confirmation that Ilmatar-Pomona was locked for their exclusive use, and a message from Damir indicating that Pomona-Benzaiten was soon to follow.

It was then it truly dawned on her that this one was *not* a drill. Central command liked their exercises: “Our drills like bloodless battles, our battles bloody drills” was a perennial favourite motto at HQ. Some percentage of those exercises were primarily designed to test the mettle of the highest levels of command, unannounced even

to her up until the drill-over signal. After all, where was the need greater for minds to stay sharp and ready?

But there *were* limits, and locking a full gate-pair and putting the flagship on a torch burn for the deep neutral zone were well past them. The expense alone would have been enough reason to call the exercise earlier, but besides that, it wouldn't be worth spooking the Padisate with such an aggressive maneuver for an exercise.

She took another chewable as she took a moment to reassess the situation. Exercise or no, she still believed she'd done the right thing. That was rather the point of the exercises. She spared another thought for Lt. Lucia Stepanova and the rest of the crew of the Munin-079. The message had been genuine. A raven truly down, and three souls with her.

If they were heading for a fight, they would win it. But where would this end?



“Admiral Galini.”

They were through the first gate and well underway through Pomona with five hours to go when Aru wheeled in. Most everyone had to be strapped in to endure a 2.9 gee burn, but for many of them the command crew the work didn't cease. They were just podbound while doing it. Yun had been reviewing the strategic implications of the likely destabilization of the Benzaiten system. The narrow waist of this neutral zone had already been a concern. Losing the system would be an unimaginable failure, but securing it by force wouldn't be much of a victory either. Even assuming cooler heads could prevail in the strategic situation, skirmishes that weren't fought by proxy made people awfully nervous. It was hard to imagine that Benzaiten could remain a neutral conduit for traffic, and if it was locked down they would be down to Raitaro as a single chokepoint. That in itself would constitute a crisis given the situation there.

She was several seconds late in acknowledging that Aru had spoken.

“Go ahead, Aru.”

“Commander Sabirova wants you to speak to Pomona-Benzaiten personally. We're three hundred clicks away. It'll almost

resemble a conversation.”

“They're not reneging on the lock?”

“The lock is still secure. Calliope just says they're restless. They can't figure out what the Pads are up to. She thinks if you can reassure them a little, be the adult in the room, they might be willing to share their own sensor data.”

Yun raised an eyebrow. A neutral gate sharing raw sensor data with one of the powers wasn't *strictly* a treaty violation, but it was certainly not normal procedure. If Calliope was right, restless must have been a bit of an understatement. The gate commander would have to be desperate enough to put their career on the line. That alone made the idea of sensor data, crude though it would be compared to what they were accustomed to from the Munins, even more alluring. Whatever was gathering on the other side of that gate, once the Mingghan came through, the moment of surprise would be the enemy's only advantage.

If they could take away that.. well, Kanat might have estimated their worst-case losses at only three modules, but three modules would still be hundreds of lives. It would be irresponsible not to take whatever opportunities were presented to skew the odds even further in their favour.



She took the call from the war room, where Kanat and Rafaël were already in attendance, their pods wheeled next to Calliope's. They were at a light-delay of five minutes and decreasing steadily, sending replies whenever they received a message. Calliope's judgment hadn't failed her. The gate commander, a Mr. Nam-Viklund, had been clutching his little spiral-cross necklace so hard his knuckles were turning white in his last transmission. Sometimes he sent several transmissions within his window. The man was clearly not just confused by the situation, but out of his depth and terrified. His job was to manage the flow of commercial interstellar traffic through the neutral zone, not to deal with acts of war.

When Yun had transmitted directly to him—with all the dignity she could muster while strapped in a burn pod, less than her usual but still a surprising amount—he looked immensely relieved by her

reassuring platitudes. Someone, someone not him, was coming to take responsibility for getting them out of this mess. When prodded by his savior-to-be, he was more than willing to transmit the sensor data.

When they received the data, what they saw was perhaps the most unsettling thing they could have seen: almost nothing. Nothing had come through the Varuna gate. The Zulfiqar was drifting alone and unsupported, and had made no effort to hinder incoming gate crossings from the coalition side.

“What the fuck are they thinking? A single frigate? Even if they weren't expecting the Mingghan, they have to know they couldn't possibly hope to defend a star system with a single frigate.” Kanat, much like Nam-Viklund, was unsettled by things he did not understand, but where in the gate commander that feeling manifested as terror, in Kanat it manifested as rage. Kanat liked an overwhelming advantage as much as anyone, but he was clever enough to see that an enemy engaging at *too* overwhelming an advantage suggested that there was something about the situation that one was missing. “Why the fuck are they not going back through the Varuna gate? Whatever the point of their little stunt was—well, they failed. Why hang around like idiots for twenty-five hours just waiting for us to come pick them off?”

Rafaël set the knoma to work on looking for patterns in the data. “By our standards this is awfully primitive stuff,” he droned. “It seems clear we're missing something. We can't give them better sensors, but we may be able to compensate with compute.”

“Leaving aside why they're not going back,” Yun began, “If for some reason they can't, then they're cornered. They're not even trying to retreat, not in any direction.”

“Isn't that.. good? We've got them pinned down?” Calliope, an excellent communications officer but lacking any background in fleet tactics, seemed the lone optimist in the room. Still, she could sense from the others' reactions that this wasn't a situation that called for optimism.

“When they shit's hitting the fan they've got to be trying *something*,” Kanat explained. “Fight. Fortify. Flee. Surrender. Negotiate. Position themselves for an advantage. They're just..

hanging out. If you don't see them trying to do anything, then what they *are* trying could be, well, anything.”

“*When you surround an army, leave an outlet free,*” quoted Yun. “*Do not press a desperate foe too hard.*”

“Fuck.” Kanat was struck by a sudden revelation. “Stealth tech. These crappy civilian sensors wouldn't pick up—”

He was interrupted by a new transmission from Mr. Nam-Viklund.

“Admiral! We—we just picked up a bright flash—brighter than anything—admiral, the Osanyin gate is gone, admiral! They sundered Osanyin!”

At the same time, the knoma highlighted detected anomalies along two paths, both originating from the Zulfiqar some twenty hours prior. Very *small* anomalies. Drones, probably, running fast and dark and cold. Their stealth coating wouldn't have fooled military sensors, but civilian sensor tech hadn't kept up.

One for Osanyin, the trail ending as it was lost in the blast.

Another was rapidly approaching Pomona.



Constructing a warpgate was a major undertaking. One had to first establish a spatial bend and then carefully apply energy to the local side in such a way as to guide the tip of the bend at lightspeed—across interstellar distances—to establish the join. It was careful, delicate work that usually required on the order of zettajoules of energy applied over many years.

The gates were considered a thing of pride and a thing of beauty that transcended the ideological divide: the arteries of human civilization. To be cut off from them was to throw oneself back to the pre-expansion age, to be alone in the universe. For many systems, such isolation meant death.

The gates were also a thing of tension. The analogy that was usually taught to students was that of a spring. The equations involved were different, but the fundamental physics shared some important characteristics: the more energy you applied, the further you could stretch. Easy to snap. Moreover, conservation of energy was merciless: all that energy had to go somewhere.

Sundering a gate was quick and comparatively cheap. The powers had largely refrained from it since the days of total war. The *threat* of sundering was something the powers deployed only as a deterrent, to constrain the enemy's movements. If follow-through were necessary, it would have meant a grave strategic error on one part or the other. To sunder a gate without warning was a desperately brutish act.



They were forty ticks away when Yun sent the final message.

“Mr. Nam-Viklund. By our calculations the sundering drone will reach you thirty seconds after your receipt of this message. There is a window of about ten seconds where you may be able to take it out with your point defense. We've attached your sensor data back with the drone trail highlighted.”

In the war room, they all knew that it was hopeless. Whatever the delivery mechanism was, it was likely true that it could've been destroyed with a well-placed shot, but a point-defense cannon cannot shoot what it cannot track. A vague idea of where the target would be courtesy of some minute-old annotated sensor data would be no help. A kindness to comfort the dying, to give them something to do.

“If you cannot.. Mr. Nam-Viklund, on behalf of the coalition I thank you and your crew for your services to humanity. May God smile on all your souls.” Yun Galini had never been an Abramite, but it had been clear from the necklace that the gate commander was a believer. What did it matter whether she told a white lie to comfort a dying man?

They had turned down the burn and gotten out of their pods. The command crew had gathered in the war room, all somber, some curious. The wall monitors were set up to mirror the optical sensors, showing only slightly more than what they would have been able to see with the naked eye. One of those little pixels, brighter than the blackness of empty space, was the Pomona-Benzaiten gate. Within that little pixel was Mr. Nam-Viklund with his crew of sixty souls.

Even with her face turned away, Yun couldn't miss the flash as the monitor bathed the room in white.

3



Ken

Ken blinked. In the first moments he felt as if he were waking from a brief nap. The mild shock jolted him from his somber funerary state of mind into dreary practicalities. It seemed like it hadn't worked quite right. Some revision needed to be made before they needed to send him under again. Gradually, he pulled his mind out of the sedative haze and started to notice everything that was different, or rather, that everything was different. He was not at Endymion. He wasn't even in his original pod. His hand hurt. That woman wasn't Luce. Whatever it was she was operating, the image suspended in the air in front of her was like no technology he'd seen before.

The pod sprung gently open and he was lifted smoothly onto something like an examination table. The woman—an unusually tall woman dressed in a loose white robe, looking to be in her late thirties—regarded him with curiosity.

“Elkoba mi stramno.” She spoke in rapid-fire syllables. Her voice sounded harsh and grating to his ears, and he looked at her uncomprehendingly.

His pains were returning as the sedative was wearing off. He was getting a headache, which he knew was only a harbinger of worse pain to come. Besides that, he felt the urge to stretch. Attempting to extend his arms and legs, he was startled to note that his right hand—the one that hurt—hung limply from his wrist. He

couldn't move his fingers. Looking over his body, he saw that his skin was mottled and greyish, his hand perhaps especially so.

“Noddifjun rastadis.”

She looked somewhat frustrated at his silent blank stare.

“Juzesek.”

She opened a cabinet and rummaged through it, finding a semitranslucent blue sphere about the size of a tennis ball. She pulled it apart by a seam at the middle and held the two hemispheres out to him, seemingly waiting for him to do something. Seeing that he still did not understand, she apparently decided to proceed without his say-so. She leaned down and pressed the hemispheres to his ears. They glommed onto his skin and stayed in place.

“Can you understand me now, Mr. Amano?” At first he heard the incomprehensible barking, but after only a moment it was joined by a second voice, clearly speaking English. Or rather: it was not a second voice. It was the same voice, subtly tweaked, with all the harsh edges of the sounds toned down to the point where the overall effect was only that of a subtle accent. Hearing both at once, he could hear that most of the syllables were shared between the two voices. It dawned on him that it was in fact English the woman had been speaking all along—only in an accent so ludicrously thick that he had been entirely unable to even recognize it.

“Yes.” His voice came out mixed with something in-between a groan and a yawn.

“You've been under for a long time.”

He realized, suddenly, that he had many questions to ask. Rising to a sitting position, he tried to ask several of them at once. “What year is it? Who are you? You can—you can treat me?”

“One moment, Mr. Amano. It's important for your health that we run some diagnostics. Ten minutes, then we can talk.”

He nodded. “My hand—”

“Lie still.” The woman took off his earpads and pushed gently down on his chest, guiding him back to a prone position on the examination table. With an almost inaudible whirring, a clear lid closed over the table and enveloped him in some kind of pod once again.

A disorienting number of things happened at once. What seemed like impossibly tiny needles pricked him in several places, like mosquito bites each drawing just a drop or two of blood. Metal pads pressed against his head. A visor was pressed to his eyes and a sequence of images flashed briefly before him: images of men and women and objects and places. Some images pleasant, others disturbing. Some sparked a sense of familiarity, but most were strange to him. He was in a haze again, his pain subsiding, and he drifted back into a comfortable sleep.



When he awoke again, the pod enclosure had retracted and he was once again lying on the examination table. He was wearing the blue earpieces again. He felt better, as if waking from a refreshing nap after being very tired. He flexed his fingers, noting first that the pain was gone and that he could move both hands again, but then also that his right hand still felt weird somehow. It felt like it was not quite *his* hand.

“Mr. Kensuke Amano. Welcome back.” The woman sat in a chair beside the table, smiling at him. “You are a very lucky man to have undergone the treatment you did and come away with only these injuries. Butchery, frankly, the tech they had back then. Twenty percent survival rate.” She pressed a button on her armrest, and the table propped him up in a sitting position.

“I’m—I’m ill,” he started. “I’m dying.”

“Oh, hardly at all anymore.” She gesticulated dismissively in the air. “I did read your file. Cancer of the blood, yes. Terrible stuff, but yours is of a sort that is quite manageable these days. We’ve taken care of the worst of it already. A few more treatments—”

“I take it you’re a doctor?”

“Yes. Forgive me. Terrible bedside manner. Andrey Rao. I’m a specialist in cryogenic restoration.”

“My hand—”

“Amputated, yes. Your original one was unsalvageable, I’m afraid. But if you are not a sentimental man, Mr. Amano, you have little to complain about on that account. It might still feel a little off, but give it a few days and a few calibration treatments, it should feel

completely natural again. Objectively better, in fact. Your sponsor had one for you in the medical labs on their ship. Military-grade stuff. Custom-made. They spare no expense on those things. Even if you were fond of your old one, you have to realize that coming away with the loss of only one hand is an uncommonly good result for a restoration from your era. There is only so much we can do about damage that has already been done. Most come away with serious brain damage—”

“Wait. My era? What year is it?”

“The year is 441, Mr. Amano. Well, but you're pre-expansion. You would be..” She rolled her eyes up and to the right, seeming to consult some unseen interface. “By your old Gregorian system it would be 2496. You missed the start of the expansion age by seventeen years.”

He ran through the numbers in his head. Four and a half centuries. Everyone he had ever known would be dead. Their grandchildren's grandchildren would be dead. If people even still died the way they used to. Four and a half centuries made it hard to even begin to know what to expect. “So... uh, this cure you've given me, that's a recent development, then? It took four centuries to cure my cancer?” He paused for a half-second. “Uh, not that I'm not grateful.”

“Ah.” Her tone became more serious. “You touch upon a sore point. Legal matters are not my area of expertise. Don't trust me on the details, and you'll have it all in writing later, but I've been instructed to be candid with you. Frankly, Mr. Amano, given the poor prognoses, restorations from your era are a massive legal liability. Destroying viable biomaterial would be illegal, of course. But in many cases it can be argued that the contractual terms that would trigger your restoration have not *quite* been met, down to the precise wording of the contract. The cryotechnicians of your era operated at a similar level of sophistication as the lawyers who drew up the contracts for them. There's always a loophole, and.. well, it has become dreadfully affordable to keep people frozen indefinitely. Sleepers from your era get unfrozen when it suits someone's interests.” Andrey averted her gaze. “This is a fairly sordid aspect of the business. I wash my hands of it, personally.”

“So.. you're saying I could sue Endymion? Why *did* they wake me, then?”

“Four hundred years have passed, Mr. Amano. The company you dealt with—” Again she rolled her eyes upwards. “—ah yes, the Endymion Corporation. They didn't last four centuries. They didn't even last two decades. Your body has changed hands, as it were, many times. Pardon the expression.” She grinned impishly. “As for why you were unfrozen—and, yes, suing your sponsor *is* an option that's open to you—well, I think it's better if you speak to them yourself. Admiral Galini should be on her way to meet you in person, in fact.”



Admiral Yun Galini was a short, solidly built woman with her dark hair pulled back in a neat bun. She seemed the picture of immaculate professionalism, but for her chewing on something as she was speaking to him. She wore a serene smile on her face, a face not unmarked by age. Ken would've guessed that she was in her mid-fifties, but having learned that he'd been whisked four centuries into the future, he found it impossible to commit to a guess beyond that she was not young. Who knew how people aged these days? She might be much older. At the very least she was older than him, he thought, before he realized that *that* was certainly untrue. With every minute that passed in this new world, he became aware of a new bewildering array of fundamental things that he did not know. He had been told this woman was an admiral, but he felt fairly certain that she was not the seafaring kind.

“So you—the organization that you represent—you *bought* me?”

“That's uncharitable framing, Mr. Amano, and misleading. The Joint Coalition Fleet acquired the rights *and* the contractual responsibilities to care for your cryogenically frozen body. We did so with the intention of finally honouring those responsibilities, unlike the people we were buying from. We've made good on our promises. That's why you're here today.”

“So am I in the navy now? Am I being press-ganged?”

"You are a free man, Mr. Amano. No citizen of the Coalition is owned by another. But we do have an offer of employment for you."

"You need a software engineer?" Ken felt flattered for a moment before he realized that the idea was utterly ridiculous. Back in his day, he'd felt himself stagnating if he he'd gone even a few years without learning a new language or at least a new framework. The technologies he was used had the lifespans of mayflies. A programmer was an old out-of-touch greybeard after a decade spent out of touch with the community. It was inconceivable that any of it would be relevant after four centuries. "Or a software.. uh, archaeologist?"

"Kensuke. May I call you Kensuke?" Admiral Yun took a deep breath. Ken figured it was the look of someone who was about to try to tell a long story to someone who was already wildly confused by the first sentence.

"I just go by Ken. And you were Yun?"

"Well, why not. I won't stand on formalities before you've even joined us. Ken, how much do you know about the world you've woken up in?"

He slightly resented her asking, as he was quite sure she knew already. "Uh.. very little."

"I swear that I'd love nothing more than to explain the mission to you, but I need you to have some basic context first. I'm sure you were a font of knowledge in your time, but right now you know less of this world than a five-year-old. We don't enlist children."

"Uh.. I'm glad to hear that."

"Do you even know where you are, Ken?"

He felt a pang of disappointment in himself as he realized that he didn't have the faintest idea, and that he hadn't thought to ask either Dr. Rao or the admiral for this fairly vital piece of information.

She read his silence clearly enough. "Come here." She stood up and gestured for him to follow as she walked over towards one of the walls in the office. He followed sheepishly. She held the back of her hand up to a panel in the wall, and a section of it lit up, turning into a sort of touchpad. She pressed a few buttons with nimble fingers.

The wall, which in the previous moment had seemed to be a perfectly ordinary office wall with a cream-coloured aesthetic not noticeably different from the ones he had seen in blandly decorated offices four centuries prior, suddenly looked like the cleanest and most transparent window he had ever seen.

Through the wall that looked like a window he could see the vastness of space, a black expanse dotted with a sea of stars shining brighter than he had ever seen them.

“Welcome to Soyinka Station, Ken. We can leave you here, or you can come with us. We'll be resupplying here for the next eight days, so you'll have some time to get your bearings, get your briefing, and then come to an informed decision. For now, you have a lot to get used to. The Asteria system is about thirty-six lightyears from your old home.”



It wouldn't be before the day after that Ken would get anything more substantial out of Admiral Galini. Although she seemed to desire his cooperation for some reason, Ken gathered that she did not feel it was her job to play the part of elementary school teacher. She had left him in the hands of a man called Aruzhan, a curt and formal military man who had led him to a residential suite in the civilian section of the station which they'd reserved for him.

Aruzhan had saddled him with a number of objects. Presented first was legally-mandated paperwork. Ken had to take Aruzhan's word for that being what it was, for it was delivered not on paper but on some sort of opaque black pebble. He had enough awareness to understand that it was some sort of storage medium, but he had not the slightest idea of how to use it. Once the formalities were dispensed with, however, Aruzhan had also supplied him with some informational reading materials in the form of lightweight touch-operated tablet computers. Ken had suspected that at least a few of these were literally children's books, but they suited him well enough.

His suite had a main room centered around a large flat surface that was unmistakably a bed, and a side room filled with mildly mysterious devices which he could nonetheless infer from

context was probably a bathroom. In broad strokes it could be recognized as a reasonably swanky hotel room. As far as he understood he had the freedom to go wherever he liked. He would have liked to believe himself adventurous enough to immediately seize the opportunity to go exploring. He was in space! Did he not owe that much to his boyhood self? In fact, however, the place had evoked in him the familiar feeling of arriving to the boring comforts of a hotel room and only at that point realizing he was dead tired after a long day of travel. Cryosleep, it seemed, was not particularly restful sleep. He lay down fully clothed on the bed and fell promptly asleep with his educational tablets spread out around him.

It was impossible to tell how much time had passed when he awoke, but it was hard to wrest himself from the comforts of the bed. He found himself instead swiping through the pages of the books he'd been given, learning about the basics of his new reality like the admiral apparently expected. He learned that mankind had spent the last four hundred years—441, to be exact, since the establishment of the first warpgate between Sol and Proxima Centauri—spreading itself across the galaxy by way of an ever-expanding network of warp gates. Politically, it seemed like at some point most of the solar systems had aligned themselves with one of two major powers: the Coalition and the Padisate. The books he read made the Coalition seem like the good guys, which he figured was what he could expect from reading their children's books, perhaps even more so if they were in fact the bad guys. The Padisa, in contrast, was the ruler of some sort of neo-feudalist empire with a state religion. He tried to read with a critical eye, but still came away feeling like the Coalition had the edge: religious freedom, democracy, all that good stuff.

After an indeterminate amount of time spent reading, he heard a chime at the door and he heard Aruzhan calling out to him at the other side. After a few minutes of confusion as he struggled to locate the mechanism to actually open the door, Aruzhan eschewed politeness and simply let himself in.

“Good morning, Mr. Amano. Did you get yourself a good night's sleep?”

Ken mumbled something not quite comprehensible even to himself, but the soldier seemed to take it as a yes.

“Very good. Admiral Galini is ready to give you the mission briefing. Come with me. You can eat on the way.”

The man handed him a metal cylinder and twisted the cap off to reveal something not unlike a smoothie, then stepped out into the hallway. Ken took a swig of his breakfast—he recognized the taste of apples among many other tastes that he couldn't place, though overall it was a pleasant blend, if quite sweet—and followed.



Admiral Galini was gesturing to a semi-translucent visual that hung in the air above her desk. He gathered it was a diagrammatic map of some region of the galaxy, the spheres representing star systems and the links between them representing gates. Most of the spheres were coloured green or purple, with a significant minority of grey ones.

“So, Ken. You must've learned about the Coalition, the Padisate, and the neutral zone. At a very high level you understand the political situation?”

“It's you guys against the Padisate? Something like a cold war?”

“Indeed. That particular part of Terran history it is still well known to anyone with a military education. History does rhyme, doesn't it?” Yun didn't wait for an answer. “One notable difference is the topology of the space this is playing out in. Being only a few decades pre-Expansion you'll be familiar with the speed of light, of course.” She motioned at the graph that hung in the air, with the star systems and the edges connecting them. “Each edge here represents an active gate which can transfer matter or information. By any other means.. well, travel is not impossible, but it is simply impractically slow over interstellar distances.” She traced her finger along one of the edges. “Now, suffice it to say that there are good military reasons why an active gate between two systems requires a measure of trust. Between the two powers, trust is in short supply. The implication being?”

She turned a questioning glance upon him. She might not have wanted to play the part of an elementary school teacher, but

she seemed willing enough to play that of the strict lecturer at a slightly higher level.

“You need buffer systems? The neutrals?”

“Precisely. We have our differences with the Padisate, but cutting them off entirely would be a disaster. Economically, diplomatically, even culturally. We don't want that, and they don't want it either. Now, keep your eye on this region—that's the Osanyin neutral zone, only a few hops away from us here in Asteria—as I update this map with the events of last week.”

She made a gesture in the air. One of the grey nodes turned purple. Two of the edges leading out from it disappeared.

“What's that? You lost a star system?”

“Frankly, what *exactly* happened and what the diplomatic implications are—well, that's still being sorted out. By all appearances the Padisate appeared to seize a neutral system, bungling the operation sufficiently that they actually destroyed two gates. Our cold war has not quite gone hot yet, but the mood is certainly a lot tenser than it was two weeks ago. We can only hope that a diplomatic solution can be found. What I actually want you to focus on, though, are the second-order effects. What do you notice about the grey zone?”

Ken didn't quite see what she was driving at. Seeing his confusion, she continued instead of pressing him for an answer.

“What has changed is that we now have a chokepoint. The loss of Benzaiten means that *all* traffic between the powers through the Osanyin neutral zone must pass through a single system.” She pointed. “This one. Raitaro.”

“You worry they'll take that as well?”

Yun frowned. “Now, *that* would be a catastrophic provocation. Let's hope not. Luckily, the signals we're getting from the diplomatic section rate that as very unlikely. Whatever happened at Benzaiten—there is still significant uncertainty—we don't believe the Pads are intentionally making the first moves of a total war. The issue is simply the formation of a chokepoint at Raitaro.”

She made another gesture, and the diagram zoomed into the grey sphere, morphing into an informational display about the

Raitaro system. The system seemed to largely consist of a single space station surrounded by a large asteroid belt.

“Raitaro is.. unstable. Rapidly growing manufacturing base, increasing amounts of automation, all under erratic autocratic leadership. It's been a concern, for decades, not just for us but for the Padisate as well. But intervening in the neutral zone, that's always been considered too risky.”

Ken tried to take in the overview of the Raitaro system. “It looks like religion is an issue here?”

“That's right. Highly patriarchal, extremely sexist. An ethos highly dominated by the continuation of the bloodline and the preservation of the supposed ways of their revered ancestors.” The admiral rolled her eyes—this time in the old-fashioned way. “Makes them somewhat backward-looking, as you can imagine.”

“Huh. I kind of expected more progress after four centuries. I wasn't even sure you'd have religion at all.”

Yun looked annoyed, but in this case he didn't think it was him she was annoyed with.

“If this briefing had been purely for the purpose of your cultural education I would've chosen a different place to begin. It is a little regrettable to wake you up and show you this as your first glimpse of the modern era. Plenty of people treasure their faith, but none of the faiths are exactly the ones you knew. The Abramite faith would be the most common one, both the orthodox strain in the Padisate and various others on our side. Buddhism is relatively widespread, though the practices have changed. There are direct and unblended descendants of the other world religions that you knew, though these are small and obscure next to the Abramites. Besides which, we have several smaller religions and cults—some harmless, some dangerous. The wiccans. The machinists. The unificationists. The xenotemplars.”

She exhaled sharply.

“I mentioned all these merely to tell you how insignificant the strain of thought that has captured this clan really is. It is tiny even next to most of the cults that have any cultural influence. They would really be entirely irrelevant if not for the fact that by historical accident they've ended up in control of a corporation with assets that

have steadily increased in importance—and now, finally, in control of a star system that suddenly has a stranglehold on the Osanyin neutral zone.”

“Okay, I get it. Tiny crazy group. You're saying I shouldn't judge all of the future by their craziness.”

“Good. Now, they *believe* themselves to be caretakers of the old ways of Terra, though by reputable scholarship their doctrine is almost entirely a post-expansion invention. You might recognize that they have appropriated the surface aesthetics of religions from old-Earth Asia. In particular you might recognize the trappings of what you'd know as Shintō. Any actual beliefs, however, have been twisted to the point of unrecognizability. To put it bluntly, the system is under the control of a single clan of lunatics. But stabilizing the region by application of force would be a provocation to the Padisate, so we still hope to negotiate with them.”

“And you're hoping that I might help with that?” Ken was beginning to worry that there had been a terrible misunderstanding. “If you're under the impression that by virtue of being from the twenty-first century I'm some sort of religious scholar who can help these people see the error of their ways, then—”

Yun interrupted. “You misunderstand, Mr. Amano. We have reason to believe that these people might give your voice particular weight, independently of what you yourself know or believe.”

She made a final gesture, changing the display to focus on information about a single man. The image of an old man with vaguely Asian features appeared on the screen.

“Meet Amano Hideyoshi, the patriarch of the Raitaro system. Unquestionably your descendant, *exclusively* by the male line. You may not see much of a family resemblance after ten generations. But our cultural scholars are quite convinced that *he* will care quite deeply.”

4



Adina

“Now just for a moment, look directly into the sensor, okay? Don't blink.”

She did as she was asked, and a brief flash of light illuminated her retina. The machine mulled her biometrics for just a fraction of a second, and then the screen lit up with a picture of her on the screen. Identity confirmed: Lt. Inaya Kazmi. Maintenance technician, junior grade.

“Welcome to the Mingghan, Inaya. Great to have you with us. I'm Zak.” Commander Zakhele Takada, her new boss, stretched out his hand for a handshake. “Your exam scores were.. well, wow. Exemplary. To be perfectly honest, I think you can expect to make it out of junior grade before very long.”

She smiled sweetly and shook his hand. Somewhere in the back of her mind, though, the name still grated on her. She did not like to think about what had happened to Inaya Kazmi.



Museha Adina ebat Chevalier actually setting foot aboard the Mingghan was a pivotal moment in a plan that had in motion for the more than a decade. The gears had been turning for longer than the Mingghan had actually been in service. She herself had been the lead for much of the background work, even back when the ship was just in the design phase. She hadn't known, at the time, that she

would be making the jump to field agent herself. But when the time had come, Yousef had felt that he had no other agent who could fill the role like she could.

Inaya Kazmi would've been a part of that background work for someone else in the organization. Not her part. Adina knew that she must really have existed. Inventing a Coalition citizen from the ground up wouldn't have been practical. Not without giving her a life story that would have made people ask questions. Better to find some ordinary woman, a regular citizen who had led an unremarkable life and never travelled out of the backwater system in which she was born, then fudge the records a little. The Coalition was a muddled thing that lacked any true coherence, after all. It was a quilt of disparate systems woven together by convenience, by the base need for strength in numbers. They had no grand visions. Neither did they have any high standards, and so not every member system the was equally sophisticated when it came to record-keeping or security procedures. It was easy enough to understand how that part could've been done. The uncomfortable part was that Inaya Kazmi would have had to... step aside, at some point, for Adina to be able to step into her life. Adina supposed it wasn't so hard to understand how *that* part could've been done, either, but she had no stomach for dwelling on it. Sure, she held in her heart a burning hatred for the Coalition and what it stood for—what it *really* stood for. What they had done to her birthplace. But the billions of Inaya Kazmis who inhabited the Coalition—they she did not hate. She felt nothing for them but a small tinge of sadness that someone had had to bring this particular Inaya to silence. Sometimes people were just in the way. Their people would've done the same to hers.

As a field agent she was fresh. They had prepared her for the fieldwork, of course. A strict regimen of physical fitness and combat training for the last two years now. Psychological training. She knew to expect these occasional episodes of soft-heartedness, and she knew not to let them get in her way. But the main reason she had been selected for this mission was her mind, and the relationship she had built up with this ship over a decade of preparation. She felt now like she knew this ship as intimately as—not as a lover, perhaps, having never set foot within it before, but as an obsessive

fan. She knew every bit that was not classified. She knew many bits that were. She knew its two-hundred and sixteen modules with their positions in the standard configurations. She knew their loadout, their weaponry, their designated failovers, and the size of their regulation crew. She knew the floor plans, the lengths of each hallway down to the centimeter. But above all she knew its computer systems, from the mundane details of the signal transmission protocols to the detailed schematics of the state-of-the art knowledge matrix. Even the computer systems she had admired only from afar.

She knew better than anyone the things that could be achieved without any real fieldwork at all. The delicate dance of turning a system against itself simply by feeding it carefully crafted trickery on its regular input channels was one she knew well, and it could be generally be accomplished from a place of relative safety. But the Coalition ships were heavily airgapped, and the designers of the Mingghan seemed to have been fanatically devoted to the principle. Not only were the only modules that needed to be in contact with the outside world—the sensors, the communication systems—separate isolated machines, but those separate machines were themselves treated with an almost paranoid suspicion. There were whole separate knoma subsystems to check and double-check that every such system was performing according to its contract.

To get in, then, they'd needed to strike at the heart from the beginning. Even that heart needed software updates, and the programs that performed those updates needed to run at the sort of access privileges that provided.. opportunities. The Mingghan needed software updates just as much as every other ship in existence, and—thank the heavens for system reuse—they'd been able to study the mechanism they used for updates using hardware from a captured Coalition shuttle. They used a sort of physical capsule for updates—a comically oversized device that the engineering techs would solemnly carry onto the ship under armed guard for the upgrade procedures. Her people had stripped down the capsule, identified each separate component. Mapped out the supply chain. It had been a full year before Yousef had been able to get people into the right positions, and he'd been able tell her which chip to target.

The poison pills they designed worked blindly and stochastically. It would appear to be a momentary glitch, a bug that would never be reproduced with the same capsule—each one was designed to render itself inert after the first time it triggered. If the techs were even attentive enough to notice it, it would come to be thought of as a quirk of the hardware. Just the way things worked. What it did was scramble a small region of memory in a way that would, if they were again exceedingly lucky, load their little snippet of code in a transient root context. They needed luck to succeed when striking blindly like this, but updates happened all the time. They'd only needed to be lucky once.

Her code essentially only did three things: first, it introduced a vulnerability in the internal networking stack. That did nothing by itself, but it provided a lever to pull—one only they knew about. Someone who knew about that lever could use it to escalate their privileges from regular user-level access to the internal network and into an all-powerful root context like the one the updates ran at. Without prior knowledge, it would be essentially impossible to spot: it was a flaw that would simply not exist either in the source code or the hardware schematics that the Coalition security techs would be auditing, only in the state of the system as loaded on the ship. The ship's automatic self-checking protocols, however, might have been able to detect the difference, so the second thing the code did was to introduce a small blindspot into those: the specific changes made by their code would go ignored.

The third and final change their code made was an odd one: a minuscule change to the duty cycle of the status lights by the primary airlocks. The load pattern was shifted by a fraction of a millisecond—certainly unnoticeable to any human eye. One needed to know precisely what to look for. Only someone who pointed a delicate measuring instrument at the status light—or sampled a great deal of camera footage statistically—could notice that anything had changed. Even the Coalition computer security techs weren't pedantic enough to pay that much attention to an indicator light. But Yousef's field operatives had been able to use that light to trace the impact of the their poisoned batches of upgrade capsule hardware throughout the Coalition fleet. The stochastic nature of the attack

meant that it infected ships slowly and randomly. During the first few years they had observed success only in a few light frigates. In the fifth year that the poison pills were in circulation they had managed to compromise a heavy cruiser. But it would never have been worth it to risk the secrecy of the operation to take action against any of those. There was only one target worth the effort. And about a month prior—after a routine update in the Ilmatar system—they had finally seen the telltale ever-so-slight indicator light change on the Mingghan itself.

The root access represented the keys to the kingdom, of course. In principle they could've designed a less subtle payload—one that would overload the reactors of the ship the second the upgrade went through, or set off all the missiles in their bays. But that'd come with a significant risk of failure—they'd only get one shot at trying that sort of thing, and even with root access, it would be hard to *blindly* design an attack that could be trusted to bypass the safeguards on the reactor and weaponry systems. More importantly, this was just not Yousef's way. There were certainly servants of the Padisa who would have counted as their proudest victory the act of destroying the Mingghan in some random stardock at some random moment. Whenever and wherever it happened, it would have hurt the Coalition in a number of important ways. It would've wasted a tremendous amount of their money. It would've eliminated some key strategic personnel in one fell stroke. It would've represented a significant setback in their overall firepower, not to mention a black eye for their overall reputation. Yousef, however, was a subtler man. He had wanted to keep his knife hidden and to spring it at just the right moment, for the maximal possible effect. His plan was—as it had been from the beginning—to wait for the moment the Coalition finally actually *needed* the Mingghan. Just when it was to make the leap from its endless string of victories in simulation space into actually achieving something in the real world, from a strategic threat to the realization of that threat, *that* was when he would show his hand and turn their biggest asset into a liability.

Thus all this: first the subtle and minimal payload. Then Yousef's keenest mind within the field of computer security retrained as a field operative to act as a sleeper agent. Once he gave the

signal, it was only her that he felt he could trust to exploit the opening they had created to its full potential. Whether that signal would come in a week or a month or a year, neither Adina nor Yousef could know. She would have to get used to answering to her new name.



“Hey Prak, come meet the new junior! Inaya, you know, the genius lady. You remember, right? Inaya, this is Prakash Kim. Lieutenant commander.”

“A pleasure.” Second-in-command on the Engineering-Gamma module, Prakash was rather colder than his ebullient commanding officer. “Impressive, indeed.” He shook her hand limply without much enthusiasm and went back to his work.

Zak had brought her aboard and enthusiastically introduced her to everyone he encountered around the module. It was only the more introverted among the crew, however, who had stayed shipside rather than spending their time exploring the R&R options on Soyinka. Whoever he met, the man kept going on about about her test scores. She felt almost embarrassed. Those were indeed *her* test scores—the Inaya persona had been prepared for her to take over about a year prior, and the real Inaya had never taken the engineering evaluation exam. When she'd taken it, she'd deliberately introduced delays to her answers, and even chosen a few of the more difficult questions to deliberately tank. A simple bit of subterfuge, all to avoid appearing to be too overqualified for the position she'd been aiming at. She'd clearly misjudged the level of expected ineptitude. Still, she had gotten the job they had wanted for her. A low-level position within her actual field of expertise, one where she could blend in and perform her work near-effortlessly. She'd have plenty of time and energy left over for her off-shift side projects, prodding and poking at the ship's systems. Moreover, this was the sort of job where no one would think twice about her being head-down in a terminal even after completing her shift. But being presented to everyone as a technological genius was only to her disadvantage. It didn't seem to enamour her to all her new

colleagues, either. Some of the more ambitious ones didn't seem to appreciate this disruption to the pecking order.

“Prak, could you get Inaya linked up?”

Prakash nodded silently and held out a scanner, not even bothering to look up. She held the back of her hand up against it until it beeped. He pressed a few keys on his desk terminal and gave her the thumbs up with his left hand. A welcome message popped up on her ocular. She dismissed it: a tutorial for the non-technicals. Nothing she wouldn't know. Nothing that she wouldn't have known even if she really were someone like Inaya.

“Thanks, man! Sorry if we broke your flow.” Zak turned to her again. “Hey, Inaya, don't take Prak personally. He just kind of gets lost in his work. Come here... let me show you your sleeping quarters.”

It was an odd sensation to finally be aboard: to be so close as to be dealing with the mundane realities of user accounts and sleeping quarters. It had been an apt metaphor: she really was an obsessive fan. Perhaps she'd be the kind that would ultimately spring from a hiding place clutching a love letter in one gloved hand and a spool of monofilament wire in the other, but—well, there would definitely have been a love letter. She detested the Coalition fleet, and the Mingghan was the jewel in its crown, but in the engineering—and such things spoke to her—she found much to admire. Whoever first scribbled the idea on a napkin must've been half-mad, half-genius. Whoever had taken that idea and turned it into a reality must've been *all* genius, and the people who had approved the budgets for it all must have been criminally negligent.

The central flaw, of course, per the doctrines of the fleet academies of the Padisate, was putting all of this in one ship to begin with. For all the dispersed configurations of its semi-autonomous redundant modules aside, the Mingghan was just one ship. Why doom all this power to be bundled together in just one place? The strategists of the Padisate had given her the nickname of *Goliath*, from the story in the First Testament. They had poured their equivalent resources into flexibility: more ships, but ships of a more reasonable scale. Several battleships had been christened some variation of *David*, but in truth there was no magic sling. The

strategic answer to the Mingghan was that all the little Davids could set a hundred fires at once, all lightyears apart, and that the Mingghan could only respond to one at a time. The way to fight her was to *not* do so: to instead choose to be where she was not. If occasions could be forced where they would have to face, she was still a fearsome weapon.

And as a weapon, to one who understood her, she was an elegantly honed edge. Massive though she was, her strength was not a brute strength. It was not the central coil—the “superweapon” that the popular press inevitably focused on—that made her what she was. It was not the accumulated number of missile bays, drone swarms, and high-powered railguns that she could bring to the battlespace, though that too was fearsome compared to any individual ship in the service of the Padisa. It was the knowledge matrix that was truly the secret weapon. Sporting the largest knoma ever dedicated to a single purpose, the Mingghan's grandiose design allocated as much power to her computer systems as to her weaponry. Layers and layers of inference and prediction systems linked together into something that was not quite a mind, but in other ways far beyond one. In quiet times, the crew could use it as they were all accustomed to using lesser knomas: to aid in navigation, data analysis, simulation, intelligence coordination, and strategic planning. For entertainment, even. But if and when the Mingghan entered combat, it would suspend all non-essential jobs and focus on tactical coordination. Sure, for any opposing fleet—any conventional fleet—there would be an initial coordinated opening play devised by some admiral, and a battle runbook with a considerable number of contingencies drawn up. But when the chaos of battle inevitably moved them away from all that, the conventional fleet would be a group of ships where each one would be playing its own game. Each ship would have its own human captain and its own human crew assisted by its own ship-local knoma trying to make sense of the situation and figure out how to best contribute. The Mingghan would be playing the game of war on an entirely different level. Every gun, every missile, every drone would have a shard of the mindless mind of the machine within it. A grandmaster tactician playing a *single* game, watching the

movements of a thousand limbs, adjusting its grand plan from millisecond to millisecond and whispering in the ear of each unit and advising on its next moves. It had been proven in simulations that this level of coordination could be deadly. The Mingghan was a weapon of the *mind*: she was more than the already considerable sum of her parts. It was this that Adina most admired.

Zak led her through a crew kitchen with a small dining section. “You can take your meals in here, if you like. Some of the boys always do. People like Prak, you know.”

“What, you mean nerds?”

“Oh, that's all of us. You too, right? But some of us like to pull our heads a *little* further out of the displays once in a while. For lunch, at least. I like to take the tubes down to Hy-Beta. Great kitchen, friendly folks.” He pointed to a short hallway with several closed doors on each side. “That's your sleeping section over there. You'll be next door to Gopal and Miriam. Pretty sure they're stationside at the moment, but they're great fun. You'll like 'em.”

He opened the door and showed her the room. A small private room, designed to compactly fit a bed, a storage chest for personal effects, and a very small desk. It would've been a budget option on any station—just one step above capsule accommodations or a bed in a communal room—but for grunt-level crew on a warship it was fairly generous. She'd known all this, of course. It had been crucial to choose a position where she'd be afforded a modicum of privacy. “Swanky.”

“I know, I know. Mine's not much bigger, to be honest. You get used to it, and you get to know the folks you live with. That's fleetcrew life for you.”

“I think I'll manage.” She offloaded her bag into the storage chest. “I don't need much.”

“Now, uh, about the fleetcrew life.” His voice dropped in pitch and volume. He seemed to be gathering himself for a serious moment. “I'm sure you have a good idea what the job entails. Repairs and diagnostics mostly. Helping folks with their tech. This ship is basically a small city, and outside of Engineering, well, not everyone's savvy. Plenty of folks need a little guidance.”

"Sure. Done that in corporate centers already. Fleet ones too, just downwell."

"Right. I know you have. I saw your file. And I know you were already in the fleet, it's just—" He paused for a moment, searching for the right words. "Shipside hits different from downwell or stationside. I like to keep the mood light, but I don't want you to get the wrong idea. Can be easy to forget when you spend your work shift burning through easy tickets and your rec shifts playing games, but... we're soldiers here."

"Commander Takada." She straightened herself up. "I know that. I'm not here to play. I'm here to do my part."

"Some times we're soldiers more than others. I mean, God knows we got a good ship and even if we actually get into a real scrap, there's not much can scratch her. But our lives *are* on the line here. This ship gets sent around to send some kind of a message. Every message you send, there's a chance someone else doesn't like it, and then you're in a fight. If we're in a fight, losing a module is a real possibility." He bent down slightly to look her properly in the eyes. "That could be us. It'd happen real quick. There's a reason we're Eng-Gamma."

She nodded. "I know that. I knew the risks when I signed up."

"We got shrinks in medical section you go to, just to talk. No shame in that. Won't be a mark on your file or anything. I'd love for you to stay with us, take *my* job someday. But it does take a special sort of person to do shipside. Sometimes we think it'll work out but it doesn't. Fleet's got stationside careers too. Miracle brain like you would do well anywhere. There's always choices, okay?"

"I understand, commander."

"Truth be told, we've been seeing more action lately than most of us are used to. It's been all exercises for years, honestly, just hanging out one hop away from the neutral zone in case things get ugly. Now things *did* get ugly in Benzaiten, you saw the news, I guess. Things are tense. People died. Not us. Had to do a high-gee burn, though. Back's still aching from it, though we were all strapped in of course." He leant himself backwards, stretching his sore back demonstratively. "And now we're heading to Raitaro. Diplomatic mission, but you know, no coincidence they chose a big-ass warship

for bringing our folks there. There is an *actual* chance we could see action.”

“Commander.” She spoke more quietly, with more vulnerability. Bravado and a smart salute didn't seem to be what he wanted from her at the moment. “I get it. I appreciate your concern. I want to be here. I think I know what I'm getting myself into. And if I don't anymore, if I feel myself getting loopy, I'll talk to you. Or the shrinks.”

“Good.” He regarded her thoughtfully, and finally seemed satisfied. “As long as you always know you got options.”

He felt the silence for a moment, then smiled.

“Well, that's all said then. So you know the score. Let's go see the rec room! Ever wanted to play some immersives against the best damn knoma in the galaxy?”

5



Ken

The next morning, Ken had insisted on taking his breakfast alone. Aruzhan wasn't terribly stimulating company, and he had needed time to think. He sat by himself at half-open booth in the restaurant within the same complex as his suite—hotel, crew accommodation quarters, whatever it was exactly. Aruzhan had assured him it was all paid for, and while he'd have liked to assert his independence by exploring the station and finding something else for himself, he knew that he'd have failed at the first hurdle by having to ask the lieutenant for spending money. In any case, he was plenty confused enough by where he was already. Besides, the resentment he felt over being forced into the choice Admiral Galini had given him—she was leaving with or without him in eight days' time—had hamstrung his enthusiasm for exploring the new world. He looked glumly through the little window of his booth—a window to another section of the station, clearly, but a section expansive enough to resemble a street more than a hallway. There was a lot he was missing. But he had to work this out first.

One the one hand, he had every reason to be grateful to them. Not least of all literally. They were the ones who had ultimately turned his aspiration of living again into a reality, and when his right hand had failed in the process, they had given him a new one. Aruzhan had told him that some among the fleet crew had started to view accidents that ended in amputation as something to celebrate

rather than something to mourn. After a short period of adjustment, they would end up having been changed for the better—a surgery most could never afford on their own dime, financed through the fleet's generous budgets. The fleet took care of its own, Aruzhan had emphasized, and they'd extended the same treatment to him in advance as a courtesy. Ken wasn't sure whether to believe the story about the joyful amputees. It could've been a lie either to keep his spirits up after the loss of his real hand, or one to exaggerate the value of what they had given him. But either way, to his centuries-old eyes it really was a a convincingly good hand. It looked real, the colour of its synthetic skin now closely approximating that of his own. He had no complaints about it besides a vague sense of unfamiliarity, and even that was lessening rapidly.

But in the end, this all felt like bribery. Would he allow himself to be bribed, even with his life? They had given him his life back—the new hand was a rounding error next to that, he supposed—but it wasn't like they had *saved* it, not in the conventional sense. His life had been suspended, and they had acquired his lifeless body because it suited their purposes to end that suspension. If he did go along with them on the basis of that, then he really would have been bought, like one item out of many in some sort of nightmarish mail-order catalog. He didn't like the feeling of being used.

He finished the last bite of his apple. He'd told himself that from what he'd seen people-watching in this restaurant, the people of Soyinka station seemed to enjoy a great deal of fruit in their breakfasts, and he was at least getting a little taste of their culture. Or perhaps it had simply been the easiest thing to grab, the fruit baskets sitting out in the open on every table as they were. He had to sheepishly admit to himself that he'd chosen the red apple simply because he knew for sure what it was. Most of the items on offer were unfamiliar ones, at the very least cultivars drastically different from what those he knew. He resolved to be at least a *tiny* bit more adventurous, and chose not the banana but instead a long-necked purple pear as the next part of his meal.

In the moment, Yun had seemed so convincing. But she would be, wouldn't she? She was an admiral—Ken didn't know much of the military, but he knew that was pretty close to the top as far as

ranks in the navy went. An admiral appealing to him personally. It was a charm offensive. And of course she'd be an earnest believer that she was on the side of the angels. She's be charismatic enough to inspire that belief in others. That was the job of an officer in the navy, and she was good enough at it to have risen to the top. In fact, though, he'd fallen into a world with a complex political situation. It was like being plopped down on Earth in the middle of the cold war, being given a one-day orientation, and then being asked to choose a side. Didn't that remind him of some kind of story? He remembered after a moment—it was a comic, one of those alternate-universe superhero ones. The one where Superman had landed somewhere in Ukraine and ended up being the loyal champion of Josef Stalin. Didn't exactly inspire confidence. The fact that Ken hardly felt like Superman didn't make things better. He was just some guy—in all probability the most ignorant and gullible man on the station. His only superpower was that some nutjob cult leader would supposedly find the DNA in his Y-chromosome a compelling reason to listen to him. Even if he did swear allegiance full-throatedly, he'd be more of a pawn than a champion.

He bit into the pear and immediately regretted the attempt. Hard shell. Not a pear. But his saliva was on it now, and he could hardly put it back. For better or worse, he'd have to try to open it. In this, at least, he was committed. He scanned his surroundings for some sort of tool suited for the purpose of cracking it open. Finding a strange twisted one with a pointy end next to the the more familiar cutlery, he began fidgeting with it, trying to figure out how to work it.

He had to weigh the facts. He couldn't just sullenly refuse on a contrarian whim, either. The claims that this was a mission of peace did seem credible. She'd said they were going to that system, to Raitaro, to talk. They were going to talk this Hideyoshi guy—his son's son's son's son or whatever—into some sort of peaceful solution. Maybe what the Coalition actually wanted was in fact to pull one over on the old guy, but whoever the good guys were, those guys bearing his family name certainly weren't it, so he didn't much care about that. Thus far he believed what Yun had told him. He held no value to anyone besides helping them talk, anyway. So a mission of peace it was. That was probably true. But it was still a *military*

mission of peace. Gunboat diplomacy during a cold war. They were trying to tilt the balance of power in their favour, and there was always a risk that upsetting the balance would in retrospect turn out to be a bad idea. Even the sort of massively bad idea that ended up in the history books. Moreover, well, in principle, he just wasn't a big fan of militaries. Even on supposed missions of peace, big ships with guns on them came along because they were effective tools for killing people, and he didn't like the idea of killing people. He liked even less the idea of other people trying to kill him. That might be less noble, but he felt it was justified: most wars weren't worth dying for. If he was going to join a war, he wanted to know for damn sure that it was WW2 he was joining, not Afghanistan. How could he make that distinction in a week with the political awareness of a grade schooler?

He put aside the weird metal tool. It had helped him make a little dent in the shell, but he hadn't found a way to push it further than that. In frustration, he grabbed the not-pear as if to twist off its top, or to strangle it with his hands. In the escalating war he was waging against this fruit, at least, his conscience would allow him to be brutal. He held the base with his left hand, the neck with his cyborg right, he twisted—

With a scrunching sound, the shell splintered in several places at once. Liquid burst from the shattered thing—a surprising amount of it. It spread rapidly across the table until it dripped from the edges and onto his clothes. This was more like a coconut, he realized belatedly, than a pear.

Today just wasn't his day.

“Whoa.”

As if just to make his humiliation complete, he now had an audience. A young woman, presumably on the way back from her own breakfast, had passed by his booth at precisely the right time to have caught his grand comedic finale.

“Not how most people open their wakwari. That's some impressive grip you've got there, though.”

Ken composed himself. Any joke might feel like a stinging barb right now, but her voice had been a quiet and gentle one. There was more than a hint of mirth in it, of course, but it wasn't a mocking

voice. He got the sense that if he *had* been laughing, she would have been laughing with him rather than at him. And it was a balm for his severely bruised ego that she had at least been impressed with his brute strength.

“Want me to show you?” She gave him a friendly smile and grabbed another of the not-pears from the basket on the next table over.

“Why not.” He answered stiffly, giving her an unsmiling nod. “Might as well learn something.”

She grabbed the stem between her teeth and ripped it out. A small segment of the light purple shell—weaker around the stem, clearly—came along with it, forming a neat little hole in the fruit. She put it to her lips and drank from it as if it had been a bottle. “Super tasty. Sweet but not too sweet. Wakwari's one of my favourites. Want to have another go at one?”

The woman stood ready to get another one for him from the other table. There was no hint of even gentle ribbing left in her voice. She was just being earnestly friendly. He felt his stubborn determination to experience the moment as mockery drain away from him. He gave her a genuine smile. “Thanks. Sure.”

She fetched one from the other table and handed it to him, sitting down by his side as she did so. He followed her lead and drank from the wakwari without incident. It had a mild taste that he'd classify as something like a cross between taro and pineapple. Just like she'd said, it was sweet but not too sweet. As he drank, she discreetly pressed a little symbol on the table—those were buttons?—and a small part of the tabletop near the end rose up and revealed itself to be a little machine. It proceeding to rapidly whirl around all the table's surfaces, cleaning up the mess. His mess.

“So you're.. very new, I take it?”

“I'm very old, actually.”

“Oh, I knew it!” Dimples formed on her freckled cheeks, her face lighting up in a bright smile. “You're the ice-man! The admiral brought you on for the Raitaro mission, right? Man, I'd been hoping I'd run into you. You're from like, what, three hundred years ago?”

“355 years. I did the math last night, I'm 499 years old.”

“Wow. Got a big one coming up, eh? So that means you're pre-expansion, right? Before the gates?”

“That's right.” He gave a little sigh. “It's a bit overwhelming, to be honest with you, all this.”

“Oh, I'm being rude, sorry. I'm Sandra. I'm new as well, you know. Not, like, new to *all* of this, not like you, but it's my first tour on the Mingghan. And your name was... Amano Kensuke, right?”

“Eh, just call me Ken. I'm third-gen, lived in London all my life. Dad spoke Japanese, but mine is beyond rusty.” He paused, not knowing whether he was making any sense to her. “I guess you might not know London. Or, uh, Japan.”

She erupted into a short little laugh. “I've never been to Terra, Ken, but I did go to school.” She shrugged and smiled disarmingly at him. Who was to know, really, what anyone could be expected to know? “I kind of take an interest in history, actually. Bit of a dork. You might really find folks that don't know, like, the names of the cities, and all that.”

He didn't respond straight away, just sat lost in thought for a moment. A comfortable silence. Everything seemed to be growing warmer. Waking up in a strange new world, he hadn't realized how large a part of his discomfort had been simply a feeling of disconnectedness. Alienation. It wasn't just that everyone he had ever known was dead—he had known that would happen, of course, but it was still hard not to let it bring him down when it had actually become reality. But even beyond that loss of his old connections, it had just seemed awfully hard to form any new ones. Sure, Yun and her people were nice to him. Generous, at least. But that was all just because circumstances had just weirdly conspired to make them want his help. They weren't his friends. With them he had *briefings*, not chats.

It had been hard enough to make new connections back in his own day, when at least theoretically one could chat with a stranger about music, food, travel, TV shows, politics, video games, books... it had still been hard, even when they'd all had all these things at least potentially in common. Now, he was so profoundly unfamiliar with the culture that he'd found something in an ordinary hotel fruit basket to struggle with bitterly with before eventually losing. Nevermind bands

or video games, there were major *religions* he didn't even know the name of. There had been some kind of a book that resembled a bible in a drawer in his suite, but there was an entire additional *testament* he wasn't familiar with, let alone bands or video games. He didn't, strictly speaking, know whether there *were* bands or video games anymore. Part of the reason he hadn't gone to explore Soyinka like he really felt like he should have, was that he'd been afraid to go out among that crowd and feel not so much like just some guy in a crowd, but like some sort of strange beast for people to gawp at. Now, Sandra—she'd gawped a little already, and he was sure her enthusiasm for him was at least somewhat because he was a historical curiosity—but it just didn't feel like that. It felt real. Like they could actually connect, despite all the ways in which he was different. Like maybe they already had.

“Hey, Sandra.” He turned towards her and looked her in the eyes. Maybe it was the first time he really properly *saw* her, no longer too preoccupied with all his own troubles to really properly notice. Brown eyes, friendly eyes, right at home in one of those faces where everything just smiled in concert. An interesting face, he thought. The roundish features of it seemed somehow familiar, and yet not so much in combination with her freckles and her hair which was reddish-brown to the roots. It was streaked green at the tips, but *that* he at least figured wasn't biological. Where was she from? It would've been impossible to even understand the answer. He wouldn't know the place. But she seemed like she didn't mind, and he didn't, either. “Can I ask you a weird question?”

“Of course! I'm going to have so many of those for you once I really get going.”

“I just wondered.. how is it that you can understand me?” He tapped his blue earpods. They never left his ears when he was out among people. It was a good thing they were impossibly comfy. “The doc—Dr. Rao—she put these on me when I woke up, so I figured it's not much of a mystery why I understand you. But other people, when I speak to them—am I speaking, like, weird Shakespearean English to you? Like centuries old?”

“Oh man.. I didn't even think of that.” Her face flashed with excited realization. “Oh, it's not that interesting, really. Kind of the

same as you.” She tapped her ear. “Just not as big. Implants.” She did that weird thing with her eyes, just like he'd seen Dr. Rao and the admiral do. “Hey, say something.”

“What do you mean? Oh, I get it. You turned it off?”

“Wow. Yeah, you talk pretty funny, that's for sure.” She giggled and rolled her eyes again, presumably ending the experiment. “I wouldn't understand that. But it's nothing to worry about really. Anywhere that's not a total backwater people need these. Lots of people grown up many lightyears apart before they come to Soyinka, and that means all kinds of people speaking weird. Maybe not quite as weird as yours, the ones that speak English, but it doesn't really matter. These things would get it even if you were speaking Urdu. Most folks are like me, they just leave 'em on full always, don't even think about it. Don't even notice.”

He lifted the pads off his own ears.

“Your turn. Say something.”

Sandra said something—something she thought was pretty funny, judging by the look on her face—and of course he couldn't understand her. Her voice was so different, though, from the others he'd heard. It was still a rapid stream of incomprehensible syllables, but it was anything but harsh—there was something gentle and melodic about it. He popped his pads back on.

“You don't sound like anyone else I've heard. Like Dr. Rao, or Yun, or Aruzhan.”

“Like I said,” she smiled. “We come from all over.”

She thought for a moment, and then looked at him with mild puzzlement.

“Wait, Yun? You mean the admiral?”

“Yep.”

“She spoke to you personally, huh? Whoa. I think... you might not realize how big of a deal that is. You probably shouldn't call her 'Yun'. Kind of it rubbing it in for everyone else that you've got friends in high places.”

Ken frowned. “I don't think I do. Not sure I even want to, to be honest. Friends in low places, that's what I want.”

“Well, you've got me now,” she beamed. “Your insider in Hydro-Beta. You're, uh, moving on down in the world.”

“Huh. I... I don't know what that means.”

“Hy, like hydroponics. I'm a hydroponics tech, that's my job. And Hydroponics-Beta is where they put me. I'm junior grade, bottom of the ladder, pretty much. But we grow the food, that's pretty important? I can hook you up with more wakwari.”

“Ah. Just what I need.” Ken cast a glance downwards. It felt like they'd been talking for ages, and he'd all but forgotten that he was still kind of covered in the sticky stuff.

“Hey, can I ask another weird question?”

“Just so long as you realize you're racking up a debt.”

“I... uh, I'm pretty sure there's a shower in my suite. But, well, I still haven't figured out how to turn it on.”

“Say no more, Mr. Amano,” she grinned impishly. “Maybe I can show you.”

6



Adina

When it was time for the first sleep-shift, Adina had made use of her first few hours of privacy aboard the ship to probe the state of her backdoor. Having boarded the ship carrying very little in the way of physical tricks of spycraft up her sleeve—all she carried besides what would have been expected for someone like Inaya was a somewhat overpowered personal terminal—she needed to know where she stood. Was she stranded as just a low-level tech with a grudge, or did she still have access to the root context? She felt she could trust that if the payload itself had escaped notice, she could use that hidden position as a starting point from which it would be safe to carry out at least passive probes. She could trust the code. It was solid. It was her own. And if the payload had *not* escaped notice, despite all of her efforts back then, then Coalition counterintelligence would already be watching her, and her mission would have been doomed and her life forfeit from the start. Even in that eventuality it was better to provoke a reaction early.

She lay staring at the ceiling in the bed in her cramped quarters, assembling the code on her oculars while trying to appear, in the event that she was being secretly monitored or that someone would burst through the door, to be simply unsuccessfully trying to sleep. It was a novelty to have to do the work by hand, and there was something ironic about it, coding unassisted after she had just been granted access to possibly the most powerful knoma in the

galaxy. But one could not use the master's tools to disassemble the master's house. It would leave too much of a trail. Besides, she enjoyed the mental exercise.

The first program she prepared was the simplest one possible: trigger the backdoor, then report back with some basic process diagnostics including the running context. It was such a short and simple piece of code that it was hard to imagine any bugs in it, and yet there had still been more than a little thrill to running it. This was the point at which she would verify so many of her assumptions. If it *didn't* work, barring her just having made some boneheaded mistake, then at worst everything would be lost, and even at best she would have to reassess everything. But no: it came back green. Root context. This ship was hers to take, when she wanted it.

So it said, anyway. Privileges not exercised could not be entirely trusted. If the Coalition *had* spotted the backdoor, they might have chosen to respond with like sophistication, leaving the door open but trapping her in a sandbox. That's what *she'd* have done. For the most part she had learned not to overestimate the opposition she was likely to encounter, to rate as most probable the brutish basic counterplays that considered only the most superficial and obvious aspects of her intrusions. But if they'd discovered this *particular* backdoor—a cleverly concealed but gaping hole right in the center of their holiest of holies—she'd be dealing with the very upper echelons of Coalition counterintelligence, the most talented minds picked out from trillions of citizens. The coalition's Adinas. She couldn't be paranoid enough, and in this case, the most prudent thing was to be just the right amount of imprudent.

So it was that she followed up immediately with a simple program to actually make some use of her supposed root context. Test the boundaries a little. She'd still be staying passive, not touching any actuators, but she'd get her hands on some information she wasn't supposed to have. Something she could verify wasn't faked. If she was in a monitored sandbox, it seemed likely that this would force the end of the charade. Otherwise, there was plenty of information that would be tactically useful to her. She built an interface through which she could surface it on her oculars on

demand. At first, some basic diagnostics both ship-wide and on a per-module basis: not very much past what she actually had legitimate access to, but displaying the module configuration even in the sensitive modules that were need-to-know. It was in building this, though, that she ran into the ship's physical surveillance systems. The ship was littered with surveillance cameras. Not only could she see their positions and orientations and find physical blindspots in real time, but she could tap into their annotated output and see the current position of every person aboard the ship. Before long, she had built herself a view from Heaven to access at will through her oculars. A live map of the Mingghan. One small moving dot showed Zak preparing his coffee just a few meters away from where she lay, and if she searched, she could find another dot showing Admiral Galini milling about in Command-Alpha. Now *this* would be useful. And if she had been in counterintelligence, she wouldn't have allowed her infiltrator self to have it.

She allowed herself to actually drift off into a satisfied sleep.



Her night-time activities provoked no response. She began to settle into her routine aboard the Mingghan: getting used to spending most of her time being Inaya, not Adina. She was a sleeper, after all. It could even be years before Yousef activated her.

Around her, the ship was getting steadily less deserted. On her ocular view from Heaven, few dots were becoming many dots. Meanwhile, Inaya shook hands with a few of those dots personally, the quarters around her filling up with her fellow junior tech drones. Miriam had boarded first. She was a quiet woman who mostly kept to herself. She spent most of her free time off in the immersives. When she did join a conversation, she tended to go on about them. A day later they were joined by Gopal, an eager worker, diligent but inexperienced. He struck her as very young. Among the crew in general, some already seemed to have duties of note to attend to—finishing up upgrades and diagnostics and preparing for the launch—but even many of the ones still nominally on station leave seemed to prefer to take the shuttle over a few days early to make the transition

less jarring. The rec modules and the social hotspots, that was where the dots on her ocular had really started to mill about like ants.

In between mindlessly burning through tickets. Most of them simple support issues, all the clueless officers who didn't know how to work their equipment getting back to work. Amid these, the occasional low-level system alerts that had been flagged for manual investigation, but at the level she was cleared for, these were invariably uninteresting: either false positives that turned out to require no response at all, or simple equipment failure where the runbooks directed her to fix the issue by dispatching a repair drone to replace whatever had failed.

When it was time for their lunch breaks, Zak always tried to gather his flock to head over to one of those social hotspots. Their most frequent haunt was Hydroponics-Beta.

"Prak, you coming along this time? Supposed to be serving alu khobi today. Always tasty."

"Eating later, commander. Sorry. In the middle of something."

"What is it you're working on lately, Prak? You've been obsessed for days."

"Anomaly in the metrics. Something weird in Compute-Zeta. Nearly half a percent hot. Can't see why, though."

"What, all this for one heuristic alert? You're chasing a ghost, man. Those flake out all the time. You scan thousands of metrics for anomalies, at any given time you're going to find at least one graph that looks, like, real weird. Least if you choose to keep paying attention when the y-axis scale is half a percent. Those things need tuning, honestly. Prak, you're not supposed to lose sleep over one trigger."

"Just a bit longer, commander."

"Fair enough. Knock yourself out, it's your loss. Everyone else feel like eating?"

Inaya, Gopal, and Miriam shuffled over and fell in behind the mother goose. Together they made their way into a tubetrain carriage. She was still getting used to the tubetrains that they used to get around on the Mingghan. Normal ships had nothing like them. They resembled more a scaled-down form of the mass-transit systems she knew from the larger stations and cities planetside. It

was only the vast scale of the ship in combination with its modular design that made them necessary here.

"The usual, right?"

As they all nodded, Zak selected Hydroponics-Beta on the display—the top suggestion after as soon as the interface had recognized him as the operator. Their magboots engaged, the carriage rotated, and she felt the gentle sensation of a gee gradually coming in the direction of travel. After only a few seconds, it flipped again, and began deceleration. As they came to rest, and the boots released, leaving them once again in the gentle hands of the familiar spin gravity. The doors swung open and they spilled into the main entry hallway of Hydroponics-Beta. Walls adorned with greenery made the hydroponics pods the coziest ones she'd visited. Probably a big part of what made them so popular as meeting spots.

Zak tried to get his group of loner juniors engaged in conversation. "So, you guys catch the launch schedule update from a few hours ago?"

"Yes, sir." Gopal obliged, weirdly formal with the commander even in the casual context. "Leaving Soyinka in"—he paused for a moment to check his opticals—"forty-seven hours, right? Single-gee for the Nupatik gate?"

"That's right. Finally moving. I heard they got the ice-man boarded. Might be they moved up the schedule a little."

Miriam looked puzzled. "They got who boarded?"

"Wow, you really don't read the non-essential bulletins, do you? Everyone's been gossiping about him for weeks."

"Been busy with *Ars Draconis*."

"The cryosleeper, right?"

"Right! See, Inaya hasn't even *been* here for weeks, and she's picked it up."

"Don't know much more than that, really."

"Basically, we're going to Raitaro to negotiate with the Amano clan, right?"

"Zak, I do read the *essential* ones."

"Happy to hear that. So the thing is, we unfroze his distant ancestor to bring along for the negotiations. Try to make him see reason, just freak him out, I don't know. But I hear those nuts put a

lot of stock in ancestry. Calling themselves a clan and all. The only thing better to bring to the negotiating table than a big-ass gunship parked outside is the other guy's dad, all stern-looking.”

“Sir, I always wondered. Why are we actually negotiating? I mean, you know, we’re rolling the biggest warship in the galaxy right up beside their tiny cult's tiny station, I figured the talks were just a fig leaf. But if we went to all the trouble to bring this guy..”

“Eh, it's a tense moment, Gopal. All that stuff in Benzaiten at least gave us a convenient pretext to enter the neutral zone, but if we actually take Raitaro by force, it'll be hot war for sure. Central command doesn't want that, the admiral doesn't either. Nobody in their right mind wants it, not even the Pads.”

“But, sir. These people are basically crazy.”

“I guess. Which is why we're bringing their granddad's ghost for them to talk to.” Zak sighed. “I mean, you have to put your hopes in something, right? If anyone can pull it off it'll be the admiral.”

They'd reached the dining hall, where the thin strip of plant life along the hallway erupted into entire walls and ceilings covered with plants. It wasn't as efficient as the growrooms, but it was worth the cost for the effect on morale. The hall was more crowded than usual. One of the tables seemed to be the clear center of attention, with a group of people standing around it.

“Well, I'll be damned.” Zak tapped an acquaintance on the shoulder, a small woman sporting a navigator's badge on her uniform. “Sang-mi, is that—?”

“Hey, Zak! It is indeed. Two new crew we're welcoming today.”

She pointed. “That's Lt. Sandra Narangerel, hydroponics tech. Twenty-five.”

The cheerful-looking woman with a green streak in her reddish hair took no notice, being engaged in lively conversation with someone else. Nevertheless Zak took a drink from a nearby table and raised it towards her. “A drink to that. The lord's work!”

“But our main attraction, of course..” Sang-mi pointed to the other newcomer, sitting beside Lt. Narangerel, at the center of all the attention. “Ken Amano, the admiral's secret weapon. Three hundred and ninety-six.”

“I'll say. The iceman himself.”

Zak raised his glass and drank again.

There was nothing particularly visibly remarkable about unfrozen man. He did not look 396, of course, but rather in his forties or fifties. Shortish scruffy black hair, fairly tall but scrawny, dressed in civilian clothes with big blue external earpads. Clearly flustered by all the attention, the man seemed to socially if not physically cling to the other newcomer as if she were a kind of comfort blanket.

As they moved forward through the crowded room and she got closer, she noticed that his right hand was a prosthetic. A *great* one. Almost unnoticeable. It was good enough that it would've been unnoticeable even to her, if she hadn't had field operative training teaching her exactly what to look for. This gave Adina a moment's pause. Why had they given the primitive a state-of-the-art prosthetic? Had they given him a weapon—was he in fact to be an assassin, not a negotiator?

"We got us some new crew in Soyinka ourselves." He gestured to make the introductions. "Inaya, this is Sang-mi. She's the chief navigator, actually. Used to be a wondergirl down among the mortals, just like you. Sang-mi, you really should meet Inaya. Should've seen her test scores. She joined us as a junior, but between you and me I don't think she'll be slinging tickets for long."

"Hey!" Sang-mi shook her hand and smiled. "Lovely to meet you! Grab yourself a drink!"

Adina noted that Sang-mi wasn't drinking any heavier than carbonated juice herself. It figured that despite her playful attitude, the chief navigator would need to keep her wits about her at a time like this. Still, what they had wandered into was more like a party than a lunch. The alu khopi was in fact delicious, but in addition to that, there were copious amounts of snacks—Sang-mi indulged heavily, as if to compensate—and not insignificant amounts of alcohol on offer. For many among the crew, this was among the last few shifts that they could treat with comparable levity. As long as they were resupplying at Soyinka, those among them who had no immediately critical duties aboard the docked ship were permitted a little merriment. Regulations only prohibited them from drinking to excess. But in just a few more days they would be on mission proper. The mission-time regulations would be radically stricter.

She relaxed a little and let herself be part of the general merriment of the crowd. This was no time to be glum or introspective. Inaya was certainly among those whose duties weren't currently critical, so why wouldn't she enjoy herself? Adina found that even she genuinely did. Zak and Sang-mi were great company, and they seemed to know everyone, continually introducing her to others as they worked their way around the room. As for their own group, Gopal talked about a side project he was working on, related to knoma-assisted ticket queue prioritization. He was the sort of ambitious low-level drone who might have chosen a side project in part because it was fleet-applicable and might bag him a promotion, but in so doing he had chosen something slightly out of his grasp. As the new arrival on the scene whom Zak had been hyping up as a genius, this let Inaya slip casually into the role of peer mentor. She shared little insights here and there that would get him unstuck. Gopal looked at her adoringly, and Zak all but teared up seeing how his team was coming together, disapproving only of too much work talk at what they were now unapologetically calling a party. Even Miriam loosened up a little. She did admittedly turn the conversation to *Ars Draconis*, but even her accounts of her experiences in that fictional world were surprisingly interesting, because the world seemed to have an unusual level of depth and subtlety. With the Mingghan's knoma in charge, it seemed, even the immersives were a cut above what one was used to from the civilian world.



There was little left of her shift when she made her way alongside Gopal back to Eng-Gamma, but Zak had made it clear that he didn't mind. Especially at this stage in her fleet career, he said, the formation of bonds and connections with the rest of the crew was its own reward. The sort of thing that would pay off later. Gopal was chatty, wavering between asking her more technical questions and astonished questions about how it had come to be that she knew all the answers. She answered with brief facts to the former and noncommittal lies to the latter. Ever-so-slightly tipsy and perhaps also a little smitten, he took no notice of her evasions. When the

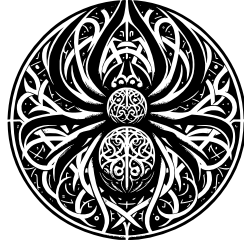
tubetrain came to rest back in their own module, she excused herself politely and sought the privacy of her own quarters.

She had genuinely enjoyed herself, but she had indulged minimally in the drinks. Unbeknownst to Zak, although Inaya's assigned duties were at this stage less important than partying, Adina—serving two masters as she was—had critical duties of her own that remained. Mingghan was tightly locked down as far as communications went, and any unauthorized transmissions would've attracted attention, but the crew were allowed to access newsfeeds that had been centrally downloaded in advance. One of the approved feeds was the *Asteria Entertainment News*, a reasonably popular gossip sheet that might not have been approved if it had been known that Chevalier had significant influence in the organization. It was this channel that she and Yousef had chosen for her orders. Such orders would be steganographically hidden within the random image data, visible and accessible only with her personal key. It was a low-bandwidth channel, and fully unidirectional: she would have no capacity to reply, not even to acknowledge receipt. Nevertheless, Yousef trusted her to burn through the gossip feed when possible. She'd written a script to automate it, of course. She ran it at the end of every shift, and for the time she'd spent aboard the Mingghan cut off from other channels, it had come up with nothing except heartbeat messages.

This time, for the first time, there was an update.

“Additional objective: investigate the unfrozen asset,” it stated. “Get close. May be more than we think. May be vital.”

7



Yousef

Maseh Yousef eben Chevalier regarded the slightly tilted face in front of him. Bright attentive almond-shaped eyes with intricate dark irises. A long elegant nose, the alluring curve of it leading the eye down to the delicate Cupid's bow that crowned the serenely smiling lips. Smooth unblemished skin, fair save for the blushing on the round cheeks. A perfectly feminine face, framed to the sides by a gentle waterfall of raven hair, the elegance in its every fractal feature seeming natural and effortless. Below: a slender neck and the visible tips of the collarbones forming a subtle arrow pointing down to the rounded features below the thin fabric of thin blue yukata. Yousef was a married man, one loyal and faithful, and a pious man, but as every mortal was he was a sinner, and he certainly did not think himself above feeling the temptations of the flesh. Such thoughts his wife understood and forgave for as long as mere thoughts they remained, as did the Padisa, and above all as did God. And such stirrings he would have felt, if he did not know it for what it was: anathema and haram, an abomination in the eyes of God and of the Padisa. By her office it had been decreed *ex cathedra*, centuries ago, that no creature should wear the guise of a human that had not a true mind. Instead all that welled up within him was true disgust, his feeling only strengthened by the sublimeness of the beauty that was here in service to blasphemy. He felt physically nauseated, and yet he moved not a muscle of his face.

"She's quite something, isn't she?" It was the old patriarch that broke the moment of silence, mistaking his silent study of the accursed thing for admiration. Amano Hideyoshi was as repulsive to him now as his synthetic companion, all the dignity and respect he might have mustered from his advanced age shattered by the depths of his depravity. "I call her Shizuka."

The creature nodded its head gently in a perfect facsimile of a respectful bow. "I live to serve, my lords."

And yet for all his anger and all his disgust, for all that his soul longed for his arm to reach out in violence and strike down both offender and offense, all he did was nod and speak quietly as if in approval. "She truly is, Amano-sama." It was a sin to lie, but in the service of a greater virtue, it could be the righteous path. And he was here in the service of the grand vision of the Padisa herself: no greater virtue could a man serve. As the warrior's duty was to die for the cause, this was the grim duty of the diplomat: to smile and to nod and to swallow the taste of vomit rising in the throat.

"Might I inquire where you found her?"

"Ah, yes. Shizuka was custom-made from the android foundries in the Rati system." The old man swelled with a boy's pride as he bragged about his toy. "I believe the most expensive single model they ever made."

Rati made sense. Deep in the lawless neutral zone was where the lowest of humanity hid from the judgment of God. Not even in the Coalition would they be unashamed to make or to display such a thing as this: they might not heed decrees from the Padisa's throne, and it might not in every system be forbidden by law, but it would certainly be considered a deep and ugly perversion. The foundries deep in the neutral zone is where one would turn to if one needed morals put aside, and had the coin to pay for it. And the android foundries specifically would even attract deranged machinists: a small group though they were, detested and operating from concealment on both sides of the divide, there were those who thought that abomination was enlightenment.

"Well spent. She is most pleasing." Yousef was an honest man by nature and did not enjoy lying, but he was good at it. Once committed to the lie, there was no added sin in making it convincing.

In his speech and his nod and in the movements of his eyes he planted a false trail of admiration, lust, and envy.

"There is more to her than meets the eye, Maseh Yousef. Shizuka is more than a courtesan to me." The old man's eyes narrowed. "She is also my protector. There are those who would harm me. There are few I can trust. Not even family. Her, I can."

This was new to him, but he let his face reveal nothing. So this thing was a combat model. Somewhere under that yukata, or even under the skin itself, would be a deadly weapon. If indeed he had tried to strike them down, those slow and elegant movements would have revealed themselves to be an affectation. Combat androids reacted with superhuman speed and moved with brutal efficiency. He should have known. For all the ceremonial glory with which he had been received, as it was fitting to receive a Maseh on a diplomatic mission for the throne, the man had never stepped out from behind the curved sheet of transparent armouring that was rose from the front of his hoverchair. For a man so advanced in years, and with so many powerful enemies—in this he spoke the truth, the man had made an enemy not only of both great powers but also covertly most of his own clan—it was no surprise that fear should be a stronger motivator than lust. Honour dictated that he should have a companion, and take pride in her beauty, but this man's character meant that he would abhor anything outside his full control that could see him vulnerable. So just as he had done with his industrial organization, he had done in his private life: he had turned to automation. The android was not an *imitation* of what he truly wanted. Perfect loyalty, perfect obedience, these were what he wanted, and these qualities were fundamentally incompatible with a human mind.

"You are most prudent, Amano-sama."



It had been a trying few weeks for Yousef. The start of the misery had been the matter of his elder brother. His *former* brother, he corrected himself. Yitzhak had always been a relative disappointment. There was no one in the court who did not see clearly that he was neither the first nor the second nor the third

choice for masehvar. By mere blood, tradition afforded him with the means to live out a life in idle luxury, and with many dignities associated with high office, but it was their clan's way that none would be chosen for rulership save through talent. For the last few years he had lived the life of a carefree playboy, but Yousef had known that there had been something in the man's character that made him strive for more. Seen in isolation, this was admirable. Ambition was a virtue. But an ambition to surpass the mere fulfillment of duty and achieve greatness, joined with the lack of any exceptional ability to satisfy it, and joined again with the personal wealth afforded to a man of his station, had been a deadly mixture.

Yousef could see exactly where it would've gone wrong. The only way he had thought he might achieve greatness had been by a daredevil act—a great victory handed to the Padisa as a pleasant surprise. A victory won by the strength of one will alone. There were many men and women of his station who ruled star systems, but very few who could claim to have conquered one by their own hand. And Yitzhak had not been entirely inept. He had been the kind of man who knew just enough to choose himself a first-rate tactician from among his father's retainers, but little enough to choose a madman for a strategist, one who would indulge his fantasies rather than temper them. And so it was that he had turned his personal pleasure craft, the Zulfiqar, into a weapon that could threaten a star system. In perfect secrecy he had set course for Benzaiten, disguised as a merchant vessel. The brilliance of it was only exceeded by the utter foolishness of it.

One might claim that he had succeeded in taking Benzaiten, but it had not been a surprise that the throne appreciated. In his fantasies of greatness, Yitzhak had been blind to the obvious fact that the conquest of one of the smaller neutral systems was not worth the political destabilization of the whole galaxy. The Coalition negotiations were enraged, and understandably so. It was a matter of luck, and of cooler heads on both side of the divide—men and women exactly opposite in character to Yitzhak, people who saw the value of stability and of quietly preserving rather than reacting thoughtlessly—that the incident had not immediately sparked a return to open warfare. And yet there were embers lit that would in

time become a flame, if the throne could not convince the Coalition that this had been the independent action of a rogue element. And so it was that Yitzhak was no longer his brother. By the coordinated decrees of their father and of the Padisa, he had been struck from the records of the clan and lost the right to the Chevalier name, and he had been cast out from the very protection of the empire itself. The Zulfiqar was adrift alone in Benzaiten, with every gate burned, six lightyears away from the closest system. It seemed unlikely indeed that Yitzhak would ever emerge from Benzaiten alive. Even if he did, though, execution would certainly await him when he got out. No matter which side he fled towards. His ex-brother had made his win-or-die play for glory, and he had both won and died. Yousef only hoped that his spectacular self-immolation wouldn't still be the spark that set the galaxy aflame, for there were still the second-order effects to deal with. The Raitaro chokepoint.

Intelligence had indicated that the Coalition would be sending the Mingghan into the system. Such an intrusion was strictly speaking not in accordance with the treaties, but in practice no objection could be lodged. The violation of the Benzaiten system and the general confusion that reigned after it provided the Coalition with unassailable pretext. Gunboat diplomacy was a crude tool indeed. Crude tools could succeed in crude ways, and if the Raitaro flipped to become a Coalition system, the entire Osanyin region of the neutral zone would be lost. It would cause great human suffering and immense economic losses on both sides of the divide. Such a thing was in no one's best interest, but in the heat of the moment, the Coalition diplomats would be unlikely to be particularly swayed by the wisdom of the Padisa. Only by beating them to resolving the Raitaro situation could they salvage the status quo.

Thus his arrival in Raitaro and at Amano-Tengen station. The sensible Chevalier son, come to clean up the mess. No gunboat he, only a small ship carrying a single man and a few retainers: much less intimidating, much less provocative, much more agile. What he did come armed with was an offer that he judged to be impossibly generous. What the Padisa was offering was, in effect, to broker a swap between the Raitaro and the Olorun systems. Both neutral systems with no habitable planets, the Padisa had apparently

already secured the consent of the leadership of the somewhat more resource-rich Olorun system, by means of what bribes only Heaven knew. The idea of *moving* infrastructure on the level of entire star systems, even small ones, still seemed faintly ludicrous, but Yousef had been allowed to study the figures and he knew that such a thing could be done if it was part of the grand vision of the Padisa. It was not an empty promise that he came bearing from, and Yousef had thought that convincing Amano Hideyoshi of that would be his main challenge. They truly were offering to entirely bankroll and execute an immense operation that would in the end leave the old patriarch a far richer man in control of a far richer system. There was no hidden catch: the only benefit they hoped to reap was to keep Raitaro under *stable* neutral leadership. In his diplomatic career he could not recall ever being the bearer of a more generous offer. It was a win for all parties, if the Padisa judged it worth the cost.

And yet the old man had so far remained stubborn in his refusal. He seemed determined to wait for the physical arrival of the Coalition delegation aboard the Mingghan. Yousef knew that this would undoubtedly escalate the situation.

"Efraim." He spoke softly, through a secure channel. His retainer was waiting back at the ship. "The android is a combat model. Learn what you can about it."

"It will be done, Maseh Yousef."

Efraim at least had proven himself a light in the darkness on this mission. A capable retainer was worth his weight in gold. There was a risk to bringing such a man as he along on a sensitive diplomatic mission, but Yousef was the spider at the center of the considerable webs the Chevalier family was known for, and such men were among his greatest assets. It had been Efraim who had managed to acquire intelligence providing some insight into the man's erratic mind. A man obsessed with his bloodline but without a child or heir. A man who had been borne from disappointment to disappointment, through three human wives who lived and died, until half a century ago he had been proven entirely infertile. The medical proof had finally become undeniable even to a man capable of a great deal of denial. Only through treatments that were considered unacceptable in his backwards belief system could this man ever

bear a child. His bloodline would die with him. No doubt a crushing blow that had made the man as bitter as he was today.

And yet there was more: what Efraim had uncovered spoke of not just bitterness but madness. Hideyoshi mumbled of cradles to be built, and seeds to come from the stars, and at every turn this talk was encouraged by his companion. Such was the danger of putting a fair human face on a knoma. *It* could be neither mad nor sane. It could speak neither truth nor falsehood except by statistical accident. It had no true mind, no aim except to say what it thought would please its master. To a madman, there could be no greater pleasure than to have the fires of his madness stoked. And having joined his life to a companion of this sort, Hideyoshi had been encouraged to grow deluded and obsessed with his delusions. It seemed like he believed that the hope of his clan's survival would be coming from the stars, and Yousef strongly suspected that he had for some reason connected this to the coming of the Mingghan. Was that the reason he had refused the generous offerings of the Padisa? Did the man think that the Coalition could offer him something more than wealth?

Through the Chevalier webs Yousef had already learned of the man they had awoken from the cryogenic archives. Was there something more there than what was superficially apparent? Something deeper than a diplomatic trick, an appeal to religion and sentiment? He had directed Adina to investigate. Adina—now *there* was a retainer who was worth her weight in gold a thousand times over, the jewel among all the creatures that slithered along his webs. She was the brilliant slingstone that would someday bring low the Coalition's goliath, and it was a great triumph that she was finally in position to act, although Yousef hoped that there would be no call to do so yet. Should she return safely then, he had resolved, he would extend to her an offer of adoption. Such talents as hers should not be restrained to mere retainership. And yet, for now, her role was also that of one small spider in the great web, one who happened to be in a position to gain information that might be of immediate interest.

“Maseh Yousef.” Efraim's voice on their private channel again. “Something else you should see. Meet me on the ship.”



He had already directed Efraim to find out more about the industrial activity in the asteroid belt of the Raitaro system. The explosive growth in the activities in the belt was at the root of why the Amano clan had been a concern even prior to control of Raitaro becoming synonymous with a stranglehold on the neutral zone. It was all too highly automated, and growing too fast. As he had seen, automation was explained by the nature of the man—a man who had no trust left for anyone—but the strategists were concerned with the idea of a Gepetto spiral. The power of a solar system in the hands of one man was a concerning idea—too much power in the hands of one man. Power in the form of industrial capacity and weaponry—power which could be employed in the service of multiplying itself and defending itself. Systems under the control of autocrats were hardly rare things, but the practical dictator made use of other hands besides his own. Workers and soldiers were normally necessary parts of the state apparatus, and such things were natural checks on his nominally absolute power. Humans provided cracks in the system. A man who ruled over machines instead of men was not a dictator but a puppetmaster, and a puppetmaster on the scale of a solar system was a dangerous thing in itself.

The fear was that Amano Hideyoshi was constructing an army. The resources of an asteroid belt, being slowly transformed by an already capable and highly automated manufacturing fleet into a mix of remote-controlled weapons and reinforcements to that very manufacturing fleet—together it could be an exponential spiral that could rapidly leave Hideyoshi in control of a dangerous number of puppets. In recent years, they had observed more and more Amano nodes out in the belt, to some extent suggesting that this was happening. It was vital to check on what the man was producing.

This having been a secondary objective from the start, Efraim had sent covert drones out to the belt as soon as they'd arrived. Back on the ship, what Yousef was now looking at was the reports from those drones.

Like so much about the Raitaro situation, they were puzzling. Their suspicions had been proven true in that besides regular

manufacturing infrastructure, Hideyoshi had been covertly producing something else. But what Yousef was looking at wasn't weaponry.

The reports showed that in the Raitaro asteroid belt, hidden among the manufacturing infrastructure, circled some twenty-thousand cold and idle state-of-the-art computational nodes.

8



Ken

Ken had begun to settle into a daily routine aboard the Mingghan. They had issued him some sort of uniform, and he no longer thought much about his reservations about joining up. The mood was hardly aggressive or jingoistic—it seemed clear to him that the people around him felt like they were going on a mission of peace. He had begun to feel a little like he had been inducted into Starfleet, a special guest on a Star Trek episode. He had indulged the feeling by ordering “tea, Earl Grey, hot” from the drinks machine in his usual lunch room, even though his preference was usually for green tea. He was not entirely disappointed. It was certainly tea, and it was certainly hot. It did not strike him entirely as genuinely Earl Grey—there were notes of citrus joining the more familiar bergamot flavours—but for an attempt made light-years and centuries away from the Earth he knew, he thought it was a rather impressive effort.

He still felt somewhat like a sideshow instead of a part of the ship's crew. Sure, he had frequently been center of attention in friendly crowds, but their interest seemed superficial. The questions they got on his nerves sometimes. A missile engineer by the name of Toreen had asked about whether his family had been farmers in his time. A security man, Olumide Morgan, had wanted to know whether he had been trained in swordplay. He realized he was being incredibly hypocritical, but he sometimes wondered why they didn't just read some history books.

Sandra was his comfort and his safe harbour, and they had allowed him quarters in the Hydroponics-Beta module not far from hers. As she had warned, she too would sometimes bombard him with questions when they spent time together, but hers were more thoughtful ones, aimed more at him personally. She had wondered how it had come to be that he had a Japanese name and yet spoke so little Japanese, and he had told her about his family situation. Born in London to Japanese parents, he had been made to study it as a child, but then his father had died early and his mother had remarried and eventually ceased to insist on it. He had come to think of himself as British-Japanese more than Japanese-British. He'd felt that way until the day he'd gone under, although once he reached his teenage years and his nerdy friends all started watching anime, he'd regretted the loss of the language. He was not entirely a stranger to the country, having gone to visit his mother's family three times, but by the time he had his second thoughts he'd lost the ear or the discipline for language-learning.

His insufficient Japaneseness seemed to be a concern in the command modules as well. It made him nervous too, that he was supposed to be used as a trump card to claim the higher ground in the world view of an ultranationalistic cult. He was called into several meetings with Admiral Yun and a few other officers; Calliope and Rafaël. Calliope, a soft-spoken redhead in her early fifties, was in charge of communications strategy, and could not hide her regret over the fact that he would not be able to greet Amano Hideyoshi in confident Japanese, ideally with a notably ancient way of speaking. She inquired whether they might be able to fake it. Rafaël, however, was an intelligence man, in a slow monotone voice he made it clear that he didn't think that was a good idea. The fact that these people had some primitive notions, he noted, did not mean that they were stupid or technologically unsophisticated. A simple technological trick they would be able to see through, and if they were unmasked in such a fashion their position would be weaker than if they'd simply never brought Ken to begin with. He thought it better instead to lean heavily on the DNA angle. They would make a specific and testable claim about patrilineage. Hideyoshi would no doubt order tests, and they would only come away looking better when their claims held up.

The other advantage they could use to offset the language deficiency was that Ken *looked* Old Earth Japanese, the way one saw in pictures and films from the actual country. For all his talk of bloodline and all his family's adoption of the aesthetics of the country, Amano Hideyoshi—the man himself—didn't quite look the part. Calliope felt that this advantage could be best pressed by having Ken show up wearing traditional clothing. Ken vetoed samurai armour as too ridiculous, but gave the OK for showing up in a men's kimono instead of a Coalition uniform.

When high command did not require his attention, he spent his time in relative idleness. He had to some extent promised Yun that he would use this time to educate himself—learning about how everything had changed—but he was weary of textbooks and educational materials, and in the frequent meetings in the command modules he'd been given fairly explicit guidance on what to do when his actual moment came, which in itself had saturated much of his appetite for edification. As such, he often found himself in the recreation modules when he had time to spare and Sandra was working. An awkward blonde woman who'd introduced herself as Lt. Miriam Mitrovic had showed him how to use the *immersives*, meaning virtual-reality video games. The player was not only wearing a visor but suspended in a kind of tank and wearing a light suit that provided the opportunity for biofeedback. She was a shy woman who, upon finding a lost soul stumbling around the machines with curiosity, seemed to have punched through her own shell to reach out to him first and foremost hoping to gain a convert to be her brother-in-arms in some sort of dragon-related fantasy game of which she was a diehard fan. He played for a while, helping her slay some sort of beast—or rather watching while she dispatched it—and although he was impressed with the tech, he found himself not quite captivated. What was the appeal of escaping to a strange new world if you were already living in one?



Leaving Miriam in her tank, he turned to return to his quarters, but found himself annoyingly stuck trying to call for an elevator to get back to Hydroponics. The strange transportation tubes one had to

use for getting from module to module were one aspect of shipside living he had still not gotten used to.

"Need any help there?"

The woman speaking was in her mid-thirties, dark-haired and tan-skinned. She was clutching some sort of electronic device in her right hand and wearing the same kind of uniform that Miriam had been.

"I can't find where I'm supposed to be going to." He ought to be grateful for the offer of assistance he clearly needed, but instead he found himself slightly resenting needing it. He'd used to be a man who didn't need assistance operating elevators.

"And where would that be?" She smiled at him with a broad mouth and he realized he was being annoying.

"Sorry. I'm trying to get back to my quarters. Hydroponics-Beta."

"Nice. That's where I was going myself, actually, just to grab a snack. Looks like you accidentally put in a module filter." She darted her hand across the elevator display and cleared the filter, and the full list of options appeared again. "There we go. Lucky man, living in Hydroponics."

"It *is* considered good spot, isn't it? I think they didn't really care where they put me, so I was just happy they could put me with Sandra. She's the only one I really know aboard here."

"You're the twenty-first century guy, right?"

"So I am. Ken Amano. Thank you for not asking whether we knew how to make fire back in my day."

She smiled gently at the joke as she punched in Hydroponics-Beta as the destination. "My name is Inaya Kazmi."

Their boots locked into place and the capsule they were in whirred as it began to rotate into place. "Oof. I always find this part disorienting."

"I get you. It's not really standard procedure even in our times, you know. Most ships aren't like the Mingghan. All this modularity. You know these go pretty fast, right?"

"Well, yes. I couldn't help but notice."

The capsule began speeding up, and the acceleration gravity pushed them downward.

“So the modules can be spaced out so far. Much further than this, actually, when the ship is in a different configuration. So if they put a railgun round through a reactor in the next module over.. well, that's when you appreciate having a good bit of space between you and your next-door neighbours.”

“Huh. But the other module would be toast, I guess?”

“Well, yes. Tactical has some pretty fancy knoma-coordinated evasive maneuvers they can pull off to make that less likely, but in the event that all that failed and there was a direct reactor hit, yeah. The whole module would be gone in a second. That's why we have multiples of everything.”

The gravity let go for a moment as the capsule flipped, then engaged again for the deceleration.

“Brutal. This ship makes it so easy to forget that it's a warship. I spend all my waking time being fitted for kimonos, studying etiquette, or playing video games, not so much thinking about being in mortal danger. You work in Tactical?”

“Oh, no. Just an admirer of the design. I work with the computer systems.”

“That's what I used to do! I was a programmer, you know. Made a pretty good living from it.”

“Really! Would be interesting to hear more about that sometime. You impressed with our modern computers?”

The capsule had come to rest and they'd arrived at their destination, but he found himself following Inaya into the dining hall instead of going directly back to his own quarters. He fixed himself a cup of sencha as she got her food.

“Truth be told,” he admitted. “I don't quite know. I haven't really studied the computers you guys have yet. All the future-stuff just sort of blends together and I can barely even operate the elevators.”

She laughed, but it was a sympathetic laugh. He supposed any tech worker would know the feeling of being overwhelmed by a field where everything was new, although perhaps not quite to the extent that everything was new to him.

“I just tried the immersives, I guess. I wasn't really in the mood for swords and sorcery right at the moment, but I must admit it was

pretty technically impressive. The way you could feel the impact when your sword hit something, they could never get that right back in my day.”

“Miriam tried to get you into *Ars Draconis*, did she?” Inaya chuckled. “The biofeedback is nice, I suppose, but I always thought the plotting was the most impressive thing about it. Here especially.”

“Really? Didn't really stand out to me. Swords and wizards, magical quests, adventure and romance among knights and dragons and all that. It hasn't gotten tired in all these years?”

“Well, I suppose that's what Miriam wants.” Setting her salad down on the table in front of her, she tilted her head a little and regarded him slowly, as if he was missing something. “It's all adaptive, you know. There's very little that's hardcoded. The knoma keeps evolving the story and the characters according to the needs of the narrative and the desires of the players. Miriam's been at her campaign for, like, forever.”

“Oh.” He blinked, taking in the implications. “Huh. That *is* a lot more impressive than I thought. Don't know why she showed me such a boring part.”

“Different people have different tastes, I suppose. Plenty of people like the fighting.”

“Hey, Inaya, if you're a computing person, can I ask you a computer question?”

“Of course.”

“I keep hearing the word *knoma*. What is that exactly? The name of the onboard AI, like an artificial intelligence?”

“Ah.” Her face scrunched up a little, as if this among all possible questions he *had* hit upon a stupid one, but she seemed to gather her patience and returned to the role of friendly teacher. “Knoma is short for knowledge matrix. People in your day were kind of careless with the terminology. We don't call it intelligent, and we don't give it a name.”

“You don't call it intelligent, even though it can dream up something like Miriam's fantasy storylines in real time?”

“Oh, you don't know the half of what it can do.” She looked at him with some intensity. “Write a story. Write software. Analyze data. Make targeting decisions. Direct fleet maneuvers. There's a

massively broad spectrum of tasks which it can do faster and better than any human, but it doesn't have what we call a *true mind*. There's a bit of a cultural taboo against that, and against blurring the lines. Pretty universally accepted taboos. The Padisate and the Coalition, this they can agree on."

"A true mind? Like self-awareness and such?"

"Precisely. A knoma is a tool that we use to accomplish tasks. It doesn't have a sense of self, it doesn't have motivations of its own. It just does what we tell it to do. It's just become so essential, so good at so many things, that if we give it a name and treat it like a human it starts becoming awfully easy to forget that.. mindlessness. Which is why we've learned not to do that."

"You know how it works? Is it still just, uh, matrix multiplication?"

"Essentially." She raised an eyebrow. "Not just one matrix, not just one model, but a complex web of them specializing in different kinds of knowledge, trained to consult each other when the situation demands it. In a state-of-the-art system like the one we have here on the Mingghan—the best of its kind, really, the knoma is the secret sauce—there's hundreds. But each one.. well, yes. Matrix multiplication. Thus the name."

"Huh. It's come a long way since I took linear algebra."

They sat there in the dining hall for a while, just talking. Sandra wasn't much of a technical person, so it was nice to get to know someone else who could draw out and then satisfy his curiosity about what had happened to his old field. Inaya seemed to be highly intelligent and well-informed, but less so about the old days, and she seemed genuinely interested to hear his old war stories. He regaled her with tales of horror about Javascript and kernel debugging, and she in turn told him about modern computing: everything that they could do with knomas and how they made use of them, in general and specifically aboard this ship, which Inaya seemed quite taken with. They shared groans over those horrors that computing had failed to move beyond over the centuries.

She showed him her terminal and taught him how to piece together a rudimentary program, assisted at every step by the knoma. It was a kind of programming, and yet not quite as he knew

it. They mostly saw the program at a visual level rather than textual, and it was an almost conversational process of fleshing out the requirements in cooperation with the knoma. “Hello world” had fallen out of favour because it would have been accomplished in a single request, so instead he elected to make a little game. One like the text-based roguelike games he had played when he was young. It was a simple game, and yet it was made exactly to his specifications—he'd put in himself and Sandra as characters, with a whole farming subgame for hers to specialize in—in no more than half an hour or so. Inaya showed him the underlying code of the thing they were building, but even at the end of their work he still did not even know the language. It seemed like a knoma had done all of the work except the choices of direction. It had even suggested *features*. With something operating at that level, it was hard not to think of it as an intelligence, to not think of it as a *someone* rather than a something, but he supposed that very uncanniness of it was why they insisted on these taboos. It was hard to wrest himself away from coding again once they had gotten started, but Inaya needed to go back to her work, and it was her terminal. She promised to put in a request for him to get one of his own, and as she went back to the elevator and he to his quarters, they parted ways with friendly smiles. At least today he had learned enough about the modern world that even Yun would've been satisfied with his efforts, and it had been *fun*. He had even made another friend in the process.

9



Adina

Even by the time they'd passed through the gate to Nupatik, Prakash was still working like a man obsessed. He took only brief pauses to sleep or to eat in the rudimentary kitchen of the Eng-Gamma module, and hardly talked to the others. Zak no longer even asked him along for lunch. It was at this point, after having churned through her regular quota of mindless tickets for the day, and having dispatched a terminal for Ken along with some files she'd found that she thought he'd find interesting, that Adina first began to become truly curious about what exactly it was that Prakash was investigating. She figured that the best way to learn that was to volunteer to help. She walked up to him as he was working on his terminal, his displays showing a bewildering array of graphs slicing Compute-Zeta runtime statistics in different ways. Nothing she could immediately make sense of, but perhaps the man was staring at a blind alley in a maze that still ultimately led somewhere.

"Hey, Prak." She spoke up softly. "You need a hand with that thing you're working on?"

"Huh?" Prakash startled visibly and jolted up from his hunched posture into an upright position before he spun around. She recognized that way of startling: his mind had been so totally engrossed in what he had been working on that he had lost all awareness of the physical realities around him, and even a friendly soft-spoken voice represented a sudden and brutal reintroduction to

those realities. She'd been the other side of that reaction plenty of times in the lab. One of the things they had drilled into her in field operative training was that she could not afford that level of inattentiveness in the field.

"I've been kind of curious about whatever it is you've been chasing. Maybe I can help?"

"Uh.." He really did need a few moments to compose himself. Maybe this was a little beyond regular focus and into the level of something involved sleep deprivation.

"I'm Inaya, remember? Joined you guys back in Soyinka?" It was only half a joke. It wasn't as if she'd gotten to know the man, nor he her, much beyond Zak's introduction.

"Yes. Yes, of course. There's.. uh, there's a lot. It's a pretty complex issue at this point."

"Try me. I'm a pretty complex person. And if nothing else, couldn't hurt to rubber-duck it out, right?" Prakash was likely a reasonably capable man, and from what little she knew of him, perhaps a somewhat arrogant one that might otherwise have been disinclined to take up an offer of help from a green junior-grade engineer. However, it didn't really require any demonstration of genius to impress him with her cool collected competence when he himself was so comparatively out of it. "Just lay it out from the beginning?"

And so he did. It was one of those cases where he had looked at every metric there was and the mystifying thing was that hardly any of them showed anything. The graphs on his display when she had caught him by surprise—none of them had actually showed anything of note, even to Prakash. It was the absence of data that was baffling him. What he *did* see was that Compute-Zeta was performing about 0.3% below its rated compute capacity even when it was assigned peak workloads. His hypothesis was that it backed off too quickly: in essence, running hot. The phenomenon was not visible very often, because cluster-wide peaks were usually something they avoided, but for every peak it represented a hard ceiling. Prak made the point that 0.3% might not sound like a lot, but the cluster was huge. Three thousandths of that compute cluster was certainly equivalent to an order of magnitude more than both of their

salaries combined, and so he felt justified in spending a nearly unlimited amount of time trying to chase it down.

As he explained, she noted quietly to herself that the man had made the all-too-common mistake of forming a hypothesis early and sticking to it. Depth-first search, as it were, and deep in the hole was where it could easily get you. But the hole Prakash had dug didn't seem to be that far from the core issue, either. The core issue was unexploitable computation resources. If the temperature thing was a dead end, then what else might explain why compute might be unavailable? She felt an unease rising within herself as she mentally enumerated the possibilities.

There could be hardware failure or gradual degradation. But such failure should have triggered some diagnostic, and besides Prakash had sliced all the nodes in the cluster in many different ways and found no significant patterns.

There could be a mistake in the specification: a rated capacity that was simply slightly too high. But this was the Coalition flagship, meticulously engineered, and no less the foundations of its most celebrated feature. It would've been tested again and again. It didn't make sense that the numbers

Or the resources might simply be unavailable because they were actually busy doing something else. Something hidden from all the regular process listings and runtime statistics. Goddamn. She quietly let her vision drift to her custom ocular backdoor interfaces as she realized that this possibility was worryingly familiar to her.

"Have you tried to compare to other clusters?"

Fuck. She regretted it the moment she'd said it. She was being stupid-smart again. It was pretty clear from all the graphs he had shown her that Prakash had only looked at Compute-Zeta. He had been stuck in a corner, recognizing the importance of what he'd found but banging his head against the same walls over and over again.

"Hmm. Good idea, Inaya." It would be easy enough to check, once she'd suggested it. Prakash let his fingers dance over the terminal for a few moments. "Checking."

In an effort to just paper over the fact that she was thinking much more than she was speaking, to appear at least moderately

competent and helpful, had she just blurted out something that might help him make actual progress?

“Oh. Oh shit.” He sounded embarrassed by the extent of what he'd missed, but half proud of what that meant about the importance of what he'd discovered in the first place. “This is much bigger than I thought. Shit, Inaya. It's every cluster.”

In the Mingghan's modular design, rated for reliable operation even in the event of the sort of catastrophic failures that could be expected aboard a warship under attack, a top-priority daemon process would run hot in every cluster for maximum redundancy. If such a process was somehow cleverly hidden.. it'd look just like this.

Had she just contributed a breakthrough in the investigation of *her own hack*?



The revelation had increased the importance of Prak's investigation twentyfold. It had given them more data and more precise numbers. The current estimate was 0.37% missing in every cluster, which in aggregate meant more than seven percent of one cluster effectively missing in action. The warship's compute clusters were not cheap to operate. A waste of about seven percent of one might have signified in the final sense a theft from all those who hungered and were not fed, but in a more immediate sense it signified the sort of budget line item that could not be ignored once noticed. There was no putting this back in the bottle. Zak had given her a meaningful handshake and said that he'd known to expect great things from her. This was the sort of thing that would basically guarantee a promotion, he assured her. Maybe skip-level. They rewarded good work. This was little consolation to Adina, since she felt increasingly sure that if this investigation was followed through to its root causes, she'd be swiftly put out an airlock. Just a few hours ago, if she'd recognized what this was, she could've resolved this situation comparatively easily. Wetwork really wasn't her specialty and it wasn't something she took lightly, but they'd taught her ways to arrange for hard-to-trace accidents and mysterious sudden-onset illnesses. Poisoning his coffee or something. Now, though, there were more people looking

at it than her and Prakash. All of them besides her suddenly keeling over would definitely raise questions.

It still didn't fully make sense to her. It was true that she was running her backdoor daemons at top priority, so they would be running in every cluster. But she wasn't running anything that was supposed to require anywhere near that much compute. Most of the time they should be completely idle. The question was: had she made a mistake in her coding? Was there a busy-loop somewhere? She couldn't immediately spot it, but she was after all not particularly used to writing code or debugging it without knoma assistance. Did she have a catastrophic performance flaw somewhere, which had only been masked by the obscene amount of compute that was available? Under normal circumstances it would have been a simple matter to check, but again she found herself stymied by her own thoroughness. All the processes running in her hidden root context were extremely effectively hidden from all the process listings and performance diagnostics.

Unsettled though she was by the ongoing investigation, she figured that the safest place to be was to be among the investigators. She could keep close tabs on how far they'd gotten, what they knew, and maybe even try to throw them off, while she thought of a way to cover her tracks or otherwise deal with the situation. She'd just have to watch herself to make sure she wasn't accidentally helpful again.

"Could it be that this is just an accounting mistake? Are we accounting for all the cycles we spend in the node master processes?"

She knew that it wasn't and she knew that they were. She'd spent an hour or so digging through the master process source code to check out this possibility on the last sleep-shift. She wouldn't have been able to sleep anyway, but she'd taken a dose of energizers to keep her alert, and gotten to work from her hand terminal. It had been a reasonable enough counter-hypothesis, and it had been pleasing to think for a moment that it could really provide an innocent explanation of what they were seeing. Unfortunately, though, the resource accounting seemed immaculate and seemed to cover every kind of overhead she could think of. Even so, any time she

could make them spend on chasing down this red herring was time that she could gain.

"Hm. Could be. Miriam, can you check that out?" It was Zak who had taken charge of the investigation now. Unlike Prakash, he wasn't afraid to delegate.

"Can't say I've ever debugged the master processes before."

"I don't think any of us have. Gopal, if you help her out you should be able to figure it out together."

"Yes, sir. We'll figure it out."

That'd be four eyes taken off the issue for a few days, in all likelihood. Not a bad result. She'd have to see if she could keep coming up with more alternative hypotheses like that.

"Prak and Inaya, I think you guys should keep digging with the assumption that there's something real here."

"Will do, commander." Prakash, groggy but still eager, spoke up for both of them. He was after all the senior engineer between them, and he was keen to defend his ownership of the issue he'd found now that there was even more glory in it.



How *could* she resolve this? She spent devoted most of her sleep-shift trying to think of ways. She could shut down her hidden processes, but now that they were all looking at it, a sudden and unexplained resolution would seem even more suspicious than the continued existence of the problem. Instead she left them running, carefully staying away from changing anything or engaging with them at all.

She was thinking along the lines of suggesting a complete cluster reboot, and then shutting down her processes in the cluster just as it was being rebooted. They'd find that the cluster reboot had magically fixed things, and they'd probably never be able to get to the bottom of how exactly it had done so, since a full cluster reboot would have thousands of interacting second-order effects. She was happy to realize that there were plausible ways out of her situation that didn't involve summary execution, but she still had a hard time thinking of a pretext for suggesting a full cluster reboot. Such a thing would, after all, be quite disruptive for the entire ship. Moreover,

once she'd led the team down this track, she would have to manage the progress carefully on a social level. The desirable thing was for them to continue to enthusiastically reboot every cluster once they'd observed that a reboot had fixed the issue in one—once the wave was completed, all the evidence against her would be erased. The problem was that there was a very real risk that one of the more experienced engineers would think call the wave to a halt and instead start trying to map out every single difference between the fixed cluster and the buggy ones, and at that point she was effectively handing them a loaded gun instead of securing a way out. Could she persuade them to reboot every single cluster at once, to avoid this possibility? But that would be massively disruptive, and massively costly. She'd need one hell of a justification to get them to go along with it. Probably even approval from Command.

Their investigation had begun to attract attention outside of Eng-Gamma, too. As soon as people who weren't complete hermits had been assigned to work on it, it had become a hot topic whenever engineers took their meals together. As much work had been done over the lunch table as in their own work areas, with everyone chiming in with their own hypotheses. An end had only been put to that because all that chatter, in turn, had attracted attention of an even less desirable kind. They'd had a visit from on high, from Intelligence. Rafäel Chimed and some of his staff. Wandering in with his hands behind his back, Rafaël had been given a briefing on the situation by a more-formal-than-usual Commander Zakhele, and had “advised” them in his slow droning voice to continue the investigation on a strictly need-to-know basis. Now they worked behind closed doors, strictly instructed by Rafaël's subordinates to shut down and report any attempts at conversation about it initiated by engineers or others who were not formally involved with the investigation. Moreover, they were now regularly visited by men wearing their service weapons openly in their belt, who didn't really contribute but did keep a close eye on how the investigation developed. These were laconic men who did not indulge in chitchat, nor even introduce themselves save for by rank and first name and the fact that they were in Rafaël's org, but Adina figured it was a pretty safe bet that they were counterintelligence. On a rational level she knew that

being on the inside of this room was still much preferable to being on the outside of it, but it was still unsettling to have to be in such close proximity with these men.

The investigation had been making the sort of slow-but-steady progress that could be expected from the collective effort of a group of decent engineers. She had come up with false trails that could be followed where she could, but it was getting increasingly hard to do so in plausible ways. Besides which, now that the counterintelligence men were there, she worried about whether they, from their detached position as outside observers, would manage to notice that she was failing to actually contribute in ways that ultimately panned out, and flag her as suspicious for that reason. For a lot of the time she simply held her tongue. One display held their list of possible high-level hypotheses that would explain the phenomenon they were observing. New ones were regularly added and old ones crossed out, but around the middle of the list “Hidden process (security breach)” been thrown up as a bullet point, and she could think of no way to get it crossed out.

Her primary idea was still to find a way to throw off the trail, and ultimately de-escalate the situation and avoid discovery. This would be a matter of social manipulation and technical skills, both things she was good at. Even so, she was finding it hard to find a viable way out, and she found her thoughts also increasingly occupied in trying to prepare a fallback plan. If her cover was blown, what would she do? Yousef wouldn't want her to waste her life nor her position of deep cover and leverage, but the things she would have to do in such a situation were in the realm of field operations where she had rather less experience and confidence.



It was when they were nearing the Leigong gate—the crossover into the neutral zone—that she found a third thing to worry about. “Security breach” had started to become worryingly lonely among the list of hypotheses yet to be crossed out, and it was starting to be the one they all thought was most plausible. In going through the motions of participating in the investigation, she had started to again find it unavoidable to do some actual investigative work. She found

herself going back into the historical data to see when the trend had started—an obvious thing to do, really, but one she had only avoided because she worried that the answer might match the timing of her arrival at the ship rather too well. But indeed, it it was such an obvious thing to check that she hadn't been the only one to think of it. Once Zak had brought it up, she might as well be the one to look into it.

The answer that she found was not the one she had feared she'd find, but on a second reflection, she found it anything but reassuring. Going by Yousef's monitoring, the successful payload activation that had ultimately set up the backdoor that had made her entry possible had happened between six and eight months prior. It was a few weeks since she had boarded the ship. She'd set up her additional hidden processes with her initial probes during the few nights, and not introduced additional ones after that.

When she aggregated the historical metrics, there was indeed a clear point in time at which peak compute utilization had dropped from essentially 100% by 0.37% across all the clusters. That point in time was *eight years ago*. Knowing what she did about the details of her intrusion, she could rest assured, at least, that there had been no stray busy-loop in her code. Whatever hidden process was burning that compute: it wasn't one of hers.

10



Ken

"I didn't know you had a gun."

Sandra had been in the shower when he had noticed the weapon in her little pile of clothes. Still combing her wet hair as she stepped out, she gave him an obliging smile.

"Ken, babe, you do remember that we're soldiers, right?"

"I thought we were just fleet crew."

"Fleet crew are soldiers. This is just a security service weapon. Anyone who passes the quals is authorized for one of these. Technically we're all encouraged to learn. I shot for sport as a girl, just decided to take it up again. That's all." She held her tongue for a moment before she continued. "We're in the neutral zone now, Ken. A big-ass Coalition warship in the neutral zone. That doesn't happen very often. It might all sound a bit abstract to you, but to me that means it's all starting to feel a bit more real."

"But.. you're a hydroponics tech. Who would you even shoot?"

"I'm not going to shoot anyone, Ken." She sighed. "It's just a qualification, okay? It could open up some doors. Maybe I don't want to be a hydroponics tech forever. I like it, it's a good chill entry-level assignment, but it doesn't really go anywhere. Not as a career."

He still felt a little betrayed somehow, like she'd wronged him by hiding this more serious aspect of her personality from him. But her nakedness was beginning to make it hard to concentrate on his anger, and he found no rational basis for it, so he attempted to force

himself to be curious instead. "So.. this thing, it fires bullets? That's kind of dangerous on a spaceship, no?"

She mistook his conversational swerve for a genuine interest. "Oh, it's low caliber, frangible ammo. Standard issue for shipside security, air and vacuum environments both. You could fire a lot worse aboard the Mingghan without denting the hull, to be honest." She picked the gun up carefully, showing it to him. It really was a very sleek and lightweight thing. It was beautiful in that way that weapons were beautiful: the alluring elegance of something precisely engineered for a simple and timeless purpose. "Low caliber, but it does the job. You're not wearing armour, it'll cut you up real good," she added. He shuddered, but she took no notice and continued. "We could go down to one of the ranges in the arsenal modules, if you want. Could show you how to shoot one of these. You ever fire a gun back in your days? The handhelds would probably have had a lot more kick to it back then."

"No. No thanks. Not really my thing."

He felt the distance between them increasing. He realized suddenly that what they had between the two of them was something that couldn't last. Unlike him, Sandra wasn't a soldier by accident. This was where she wanted to be. She wasn't a special guest on this Trek episode, she was a regular. And this wasn't actually Starfleet. There were no stun settings on what she'd shown him. Even if everyone had told the truth and everything went according to plan with his mission of peace they were on, the military still wouldn't be the place for him. This future held no future that they had in common. He regarded her with a little sadness. Maybe she knew already. Or on second thought, of course she knew. She just didn't seem to mind. Sandra always seemed to take things lightly.



In the command module, too, the mood had grown tenser. Admiral Yun, usually so unflappable, seemed on the point of nervousness, chewing incessantly on whatever it was she was chewing on. To him there was almost something of the comical in an admiral with a habit of chewing gum like a schoolgirl. If any of the others regarded it as unusual, though, they didn't show it. Rafaël was visibly stressed and

arrived late, and the meeting was then immediately interrupted by one of his subordinates. “The insider risk assessments, commander,” he said as he handed him a terminal. Rafaël made no made no reply except silencing the man with a murderous glare, and he withdrew swiftly. Only Calliope was her usual self. Soft-spoken and friendly, she coached Ken with the practiced ease of an experienced communicator.

“We want to evoke a sense of the Meiji Restoration. Openness to new ideas and external influences,” she explained. “It’s a delicate balance. We don’t want him to feel like we’re forcing this on him.”

“Even though strictly speaking,” Yun interceded, “we absolutely are.”

“Right. But we want the patriarch to feel like it’s his own idea. We’re getting signals that he’s very enthusiastic about getting to meet his ancestor, so we just need to frame this correctly so you’ll be in a position to hand down some ancestral wisdom. It’s vital that it doesn’t seem like you’re just our spokesman.”

“Even though I absolutely am.” Ken echoed the admiral’s quip.

“Yes, yes. Little white lies,” Calliope conceded without protest. “Perception is what matters here, not reality. By the time you land stationside on Amano-Tengen, you need to be have internalized those lies well enough to inhabit the role convincingly.”

“Sometimes I feel like yours is a dirtier business than mine,” commented Yun. “Or Rafaël’s for that matter. At least spies are honest liars.”

“That may be so, admiral. War is just the continuation of public relations by other means. In any case, Ken, we’ve had immersives set up for training purposes. The immersives are—”

“I’ve used them already. Some lady in engineering showed me this dragon game.”

“Ah. That’d be *Ars Draconis*, I assume. Great, so you already know your way around the equipment. You’ll find the scenario we’ve set up for you to be a little different.”



Sandra had been right that the transit to the Leigong system had shifted the mood. There were suddenly no groups of people clueless questions about what life was like in the pre-expansion days, and now that they were gone, he actually started to miss them a little. Not that he missed feeling like a mascot, but he did miss the general atmosphere of lightness and frivolity in which he had been treated like one. Now, the mealtime crowds were gone, and people seemed to clump together in smaller and more focused groups to talk about what seemed to him to be more serious, mission-related topics. When the shifts lined up right he ate with Sandra, but with the friction between them, even she seemed to have her mind on other matters. When they didn't, he now took his meals in relative solitude. His new friend Inaya seemed to have vanished altogether.

Inaya had, however, made good on her promise to send him a terminal. As a computer guy back in his own term, he felt slightly insulted that the powers that be hadn't issued him one from the start—yet another indication that he was more of a mascot or a puppet than a true participant in their eyes—and disappointed in himself that he hadn't asked for one before she had guided him through their little foray into game development. She had attached one of the little opaque pebbles with it, with a note explaining that it contained some personal files of his she thought would be of interest to him. He'd learned how the pebbles worked now, at the high level that a caveman knew how fire worked. You slid it into a little storage compartment which generally revealed itself as one approached, and once inserted the pebble aligned itself correctly into whatever port they used for data transmission as by magic. The physical size seemed entirely uncorrelated to the storage capacity, which seemed to him all but limitless—clearly great strides had been made in data storage technology. Even so, fancy pen drives were all that they ultimately were, used whenever people needed to exchange information which they couldn't simply send via the online systems. Ken would've guessed that this would've been a rare use-case, but the extensive airgapping for information security purposes aboard the Mingghan made it not so. In Inaya's case, though, he suspected she'd used a physical attachment simply because she'd suspected he might not have known how to make use of the file transmission

capabilities of the online messaging protocol. What's worse was that she would've been right.

He resolved to play around with the terminal and check out whatever the files were before the next sleep-shift, but after having taken his time unwrapping the package he was already late for the immersives. He too had gotten busier. They were due to cross through the Raitaro gate in only a few days, so showtime was fast approaching, and Calliope had set an intense frequency for his dress rehearsals.



“Honoured blood of my son's son. Your ancestors smile on what you have accomplished and what you have forged. We were the sons of an empire of the sun. Who more worthy to be our heir than you, who have risen to rule your own sun and yet hold to our ways? We come bearing many gifts for you and for your clan today if you can open your arms and your minds to receive them—”

The frail old man, patriarch Amano Hideyoshi, leaned his head on his right arm, itself propped up on his armrest, and frowned behind his thick sheet of protective glass. His unsettlingly beautiful companion—her name was Shizuka, he'd been told, though he'd also been warned to never address her directly, not unless Hideyoshi directly asked him to—spun her still-tilted head slowly towards Ken, regarding him with a skepticism mirroring that of the patriarch, somehow conveyed without letting go of her smile. It was not the first of this rehearsals, nor even the tenth. They had all learned to read the signs. He had said something wrong.

Calliope's voice perked up sourceless in his mind, chipper and optimistic as it always was when it enumerated his mistakes. “You're conflating the 'we' of the set of ancestors with the 'we' of the Coalition,” she began. “We believe that'd be a fatal mistake. He mustn't see you as one of us. You are a trusted voice here to introduce a friend, not a representative of something strange and foreign.”

Zap. The world blurred and melted together and he was treading nothingness in empty featureless space for a moment before it reshaped itself. Reset. He was back on the walkway, the old

man in the chair and the lady in the yukata now distant shapes. How many times had it been now? He'd lost count.



“Who more worthy to be our heir than you, who have risen to rule your own sun and yet hold to our ways? And yet I bring to you lessons from the *sakoku* period from my days on Old Earth.” *My days* was a bit of an exaggeration. Japan's isolationist policies had been ended in 1868, but Ken had found that the people of this age were not much concerned with a century here or there when it came to what they treated as ancient history. Besides, the old man was a ruler with a nationalist fixation. In no sense was he a serious scholar. Calliope was no doubt aware of the inaccuracy, but she didn't flag it as a problem. “To hold to the old ways need not mean to be closed to the outside world. There is strength to be found in cooperation.”

“What exactly is it that you propose, ancestor?”

“This system, the Raitaro system, is greatly desired by the Coalition purely because they wish to stabilize the neutral zone. They are willing to offer you—”

“No, no, no.” Calliope sounded frustrated. “Our only wishing to stabilize the neutral zone sounds noble to ourselves, and to the rest of the zone, and even to the Padisate, but not to Hideyoshi. This is the one guy in the galaxy you can't take that approach with. You're basically calling him unstable and irrational.”

“He *is* unstable and irrational.” He had not bothered to ask Calliope for a way to communicate privately back to her in the simulation, so he spoke it aloud. The simulated old man heard and was grievously insulted. He gave a shout and gesticulated wildly, and guards in mock-samurai armour wielding automatic rifles came running in from the wings. Ken took it all in stride with the blasé detachment that came from repeated simulated failures.

“Of course. But you can't say it, nor even imply it. He's not going to be fact-checking your history very closely, but you've got to expect that he'll be pretty sensitive when it comes to things he might take offense at.”

The guards tied Ken's hands together at his back and forced him to his knees, shouting angrily in Japanese. *Zap*. Another reset.



Another attempt led into another reset, then another, then another. The realities became a blur, and the resets started getting more frequent. The patriarch finally called him on his bullshit when he referenced *bushido* as if he had been personally subject to it. Zap. His gaze lingered a little too long on Shizuka before he started speaking. Zap. He referenced the black ships and the way *sakoku* had actually ended, which Callope felt was too on the nose. Zap. He simply stumbled and fell as he attempted to meet the old man's eyes while stepping onto the dais, losing all his ancestral dignity in half a second of slapstick. Zap.

"I'm getting tired, Cal." Hideyoshi and Shizuka looked at him with puzzled expressions.

"Yeah, I can see that. I think that's enough for this shift. We're starting to hit diminishing returns." She made the world fade to black and he was in the void again for a moment, her voice the only thing remaining in it. "Listen, I know the way we are nitpicking everything that might be relevant in these sessions probably feels discouraging to you."

"You can say that again. He's had me jailed, like, twice, probably scheduled to be executed. And even the rest of the times I feel like I've probably doomed the galaxy anyway."

"Just let me assure you, you're making real progress here. We've worked out the kinks in your opening speech. You've seen a lot of the anticipated objections. You've practiced good answers to some of them. And we've ramped up the difficulty for these sims to expose all the problems. When the real thing comes, it should be a breeze."

"Really?" Somehow he doubted that.

"Rest assured that he won't be in a position to actually physically harm you. That'd be suicide for him. You've got the whole of Mingghan at your back. The whole Coalition. You won't be alone in the room, either. Admiral Galini and I will be there backing you up, and Mr. Kanda Kim, too. You're just making the introductions."

"Okay." He still felt like that was quite a weight left on his shoulders, given that so much seemed to be resting on his ability to

set up the others with a good first impression. At least the reminder that he wouldn't realistically be in physical danger was welcome, but there were still plenty of ways he could fail disgracefully. Half of him wanted to continue to get more practice, but the other half had grown terribly weary, and on the whole he agreed with Cal that they'd reach the point where he was too exhausted to learn much from each new iteration. "I guess we'll keep going tomorrow?"

"Yeah. A meal and some sleep and some light R&R, and then back up and at 'em with your mind refreshed. We should be able to squeeze in five more of these sessions before we dock at Amano-Tengen."



When he got back to his quarters, he most of all wanted to collapse on the bed, but right before doing so he recalled the package Inaya had sent him. There'd been no sign of her at this meal, either, and Sandra had been working again. He'd eaten alone. His curiosity overwhelmed by his tiredness, it was more out of a sense of grasping for some kind of connection that he decided to force himself have look at the terminal. Maybe he could send her a thank-you message and in so doing ask her where she'd run off to? He popped the tiny pebble into the terminal's external storage compartment where it aligned and attached itself with a satisfying click.

What Inaya had sent him was a family tree. His family tree. Growing downwards, not upwards. He felt the annoyingly familiar sensation of wishing he'd had the initiative to ask for this himself. Of *course* they'd had these records. That was how why they'd chosen him in the first place. In any case, he felt himself becoming genuinely curious as soon as the opportunity to learn was put before him. What had become of everyone?

There was Ryota. There was the critical chain right below him, ten generations of patrilineal links leading to that patriarchal asshole who had just had him killed twice over in the immersives. That chain was the bit of all this he'd seen before. But there was more, too, and there was something heartwarming in seeing the sprawl of that tree. Knowing that Amano Hideyoshi wasn't the only thing his genetic material had led to, even if he might be the among the very few who

still used the same family name in the old form. He had on the order of a few hundred living descendants, spread across twenty different star systems—most in the Coalition, a few in the neutral zone, and a few even in the Padisate. There were several links, too, where the records noted that the record for a particular person was incomplete, so there might even be a larger part of the family that had just gotten separated in the official records.

Beyond just the purely quantitative, there were details in the records that had no doubt not been considered strategically important. Details that told the story about what had happened to those he had left behind when he had.. died. He learned to convert the years, seeing his own birth year listed as “minus 58”. Ryota had met a Brazilian woman by the name of Adriana—well, he didn't know when he had met her, but they had married in 2051. Three years later the records showed that they had had a daughter, Elvira, and after two more years a boy, Yuto. Elvira seemed to have been the first of the family to take the journey through the gate out of the solar system. She was recorded as having children of her own in the Proxima Centauri colonies in 2081. Ryota had died from complications related to cancer in 2106. It was strange, as a parent, to read about your child dying after growing older than yourself. He did not feel the deep sadness that he associated with a parent outliving their child. Ryota had clearly lived a rich life. He had seen so much happen, so much that would change everything. He had lived through what they now called year zero. Ken wondered whether he himself had ever gone past the gate. Even if he had not, his children had clearly travelled further than all of his ancestors put together. There were so many stories here, hidden behind the sterile records of births, deaths, marriages... it would take him years to explore it all. There must be more records, even if they weren't aboard the ship. Whatever had happened to all the old Earth databanks? Everyone's family videos, vacation pictures, social media feeds, blogs, angry anonymous internet comments.. were they all still out there somewhere? Were there centuries of minutiae here throughout which he could trace the future of his past? It would take decades. If he really dug in, it would take a lifetime.

But then there was another branch. Lucy Fairfax Amano. His Luce. Not his relative by blood, of course, but Inaya had been thoughtful enough to include her. Whatever had happened to Luce? A warmth welled up within him as he remembered her with fondness. She had not been alone, he noted without jealousy. Good. She had remarried, in 2043, half a decade after his departure. Some French fellow, the second guy had been. No more children, but as far as he could read from the numbers, they had been happy together—it had been a long union, ended only by his death in 2075. She had lived on for a while after that. He imagined her seeing her grandchildren setting out on their journeys outwards. Out to live among the stars. Luce had always liked to watch the sky at night. In 2082 she had died from—wait.

Not died. The records called it “end of life”, but—her record was like his own.

End of life by *cryonic suspension*.

11



Adina

As they drew ever closer to the Raitaro gate, they were all growing increasingly unsettled by what they had uncovered, Adina more so than anyone else. The fact that it wasn't her own trail they were following in no way meant that she was safe from being found out in the increasingly involved investigation that had developed. She understood very well that while their own efforts focused on the *what*, the armed observers in the room represented an organization that would have a parallel investigation focused on the *who*. They had made no progress at all on that front using technical means. Whoever the other intruder was, they had been as careful as Adina in covering their digital tracks. That sort of thing stopped the tech-heads dead in their tracks, but she knew that counterintelligence would soon be casting the searchlights of scrutiny in every possible direction. Every one of the thousands of souls aboard the Mingghan would be re-examined with a critical eye: their backgrounds, their characters, their mannerisms, whatever might be suspected about their loyalties. The Inaya Kazmi identity would have to be bulletproof not to be flagged as suspicious. Was it? Adina was uncomfortably aware that she herself was not.

Besides making a token effort to contribute to the visible investigation, she was splitting her mental capacity between two workstreams.

First: to prepare contingencies for when the shit would hit the fan. She was thinking *when*, not *if*—although it was of course not genuinely a certainty, and although under the circumstances, nothing would have made her happier than if she was able to maintain her deep cover while they all resolved whatever this other intrusion was—she had been taught that successful field operatives weren't optimists. She had to imagine it would all turn sour, but there were a wide variety of ways in which that could happen. She forced herself to mentally play out in detail scenario after scenario that represented a drastic turn for the worse for herself, and then make what preparations she could to make it less so. This was made trickier by the heightened level of scrutiny. Many of the preparations she might have wanted to make would no doubt have immediately flagged her as suspicious. It wasn't the right time for a junior-grade engineer to suddenly begin lugging around personal defense weapons, even if her open root context still technically provided her with the means to open any door she wanted. The root context itself would have to be her weapon: while she was making minimal use of it for the moment to evade detection, at the right moment she could let loose and make the ship itself her weapon. The question was how to wield it.

One of the easier things to do was to destroy the entire ship. The modular nature of the ship, and that it could all largely be controlled centrally to support the knoma tactical coordination, made for some truly entertaining possibilities. If the ship was made to be its own enemy, she could blow all the reactors in seconds. In fact, she didn't even have to fire a single weapon to do so. Technically and tactically speaking it was all very appealing, but she doubted whether this was what Yousef would have wanted to be her last hurrah. She had not received standing contingent orders to that effect, even though they would have been easy enough to give. Having no means to transmit back to inform Yousef of the escalating situation, she had to rely on her own understanding and judgment. In strategic matters, that was informed by Yousef's. She truly did believe in his vision, and in knowing that they were of like mind, he trusted her judgment almost as much as she did his.

The second-order effects of blowing up the Coalition's flagship in the tense situation that had formed after the Benzaiten incident were clear enough. The depth of the their cover would make no difference. No evidence would even be needed for the blame to broadly fall upon the agents of the Padisa. It would set the powderkeg that was the galactic political situation instantly aflame, no doubt provoking open war. It would be a war in which the Coalition would start off-balance and at a sudden unexpected disadvantage with the loss of its flagship. If there was to be open war, it would be a brilliant opening play: a chance to resolve the stalemate and bring actual victory within reach. Certainly there were those among the Masehi who had dreamt for all their lives for just such an opportunity. She knew, however, that Maseh Yousef was not among them. Yousef was a prudent man and a wise one - a man who loathed war as only one could who understood it deeply. Certainly no dove, she knew him to be a man with the stomach to end billions of lives if he considered it necessary, but also that he would do so only in the service of what he considered to be a greater good. He would do so to *end* a bloody conflict, not to start one. If they sparked open war now, the deaths on both sides would number in the trillions. It was Yousef's patience that had so impressed the Madoh that he had been adopted from the lower ranks, and it was that virtue that made him stand out as the weaver of the Padisa's most extensive webs. It was even these qualities that had made her choose to serve as his retainer. He was no bloodthirsty hothead. Yousef cared little for honour or glory, and he could appreciate the subtle upsides that came with being locked in a stalemate.

No, although she knew that he would deeply mourn the loss of his best agent, she knew that if she were to die, Yousef would prefer that she do so quietly rather than go out in a raging blaze that would cause despair and desolation. A quiet failure would be the better path, in his eyes, than a gloriously loud one.

And so she filed away her most destructive contingencies and made other ones to instead simply erase all traces of her activities and go quietly. Out an airlock, if necessary. She hoped, of course, that it would not come to that. It was an option of last resort, and one

that would mark the end of decades of effort in a complete failure. There must be better options. She only had to find them in time.

The second matter that was on Adina's mind was the nature of the other intruder. She carried on a second investigation of her own, using a level of raw access the others did not have, foreknowledge of a number of false trails, and the well-informed perspective of someone who had planned an intrusion in this system for over a decade. And yet there was little to be found.

The very existence of another intruder was baffling. She knew that besides Yousef's organization there were other spiders in the service of the Padisa with other webs, and that they did not always openly coordinate on such highly sensitive matters. And yet, she knew information ended up exchanged in the manner that it always did between spies: they kept eyes on each other as well as on the enemy. It was hard to imagine that there could be such an operation in progress as another infiltration of the Mingghan without Yousef's knowing about it. And yet there was someone, and who else would have the resources but an agent of the Padisa? All she could conclude was that this was no clumsy attack of opportunity. She thought that she knew her enemy's other enemies well, and yet all the other organizations would be fumbler in the dark compared to the level of the Padisate operatives. This was nothing that could be attributed the machinists or any of the various separatist groups that opposed the Coalition, even if they had managed to maneuver a few insiders into the right positions among the fleet crew. There was unmistakable competence here, the paw of an unseen lion at work.

It was not so much that the technical trail yielded no answers, as that there really wasn't any technical trail at all—they were still chasing dogs that had not barked. Even from her root context, she could only see the absence of an audit trail where there ought to have been something—causeless effects visible in aggregated side channels that were simply not explained by anything in the regular metrics.



“Lieutenant Inaya Kazmi.”

“That's me.”

"Thanks for taking the time to speak to me." She took it to be a bad sign that Rafaël Chimed, the head of Intel, had chosen to conduct her interview personally. He led the conversation, his droning voice making a mockery of his superficially friendly mannerisms, while one of his subordinates took care of the note-taking and occasionally whispered in his ear.

"Of course. I mean, didn't really think I had any choice in the matter, but I'm happy to answer whatever you need to know."

"I suppose you didn't, Inaya." He flashed a moment's insincere smile to acknowledge the joke. Not a man with a sense of humour, but neither one to resent it in others. They had taught her that a little impertinence could count in her favour more so than perfect compliance. "But I'm sorry to tear you away from the technical investigation. I hear you've made key contributions to the work."

"Thank you, commander."

"Given the situation I'm sure you understand why we're having these little chats with everyone. It's nothing personal, just routine. You were born in the Seshat system?"

"Yes, commander. Planetside on Taweret Prime. Spent my whole life down there until I was nineteen."

This was a sob-story she had practiced well. It was all the better a story for being true, although of course it wasn't *hers*.

"At which point you began attending a technological academy on Maeda-Bell station?"

"Yes, sir. My grades were good enough to earn a stipend to go upwell."

They had chosen Inaya Kazmi for a reason besides convenience: hers was a role Adina would be able to convincingly inhabit. A bright kid who was escaped bleak life in impoverished mediocrity by the power of an intellect that could not be ignored.

"How would you describe your childhood?"

"Uh, speaking frankly, sir?"

"No need to mince words."

"Seshat is a bit of a backwater. A dead-end system." She grinned bleakly. "We were no worse off than most there, but I was happy enough to be able to get out. There's... nothing much there."

“Describe your parents?”

“My ma, Nadia, she was a salvage scrapper. Didn't pay much most days but it put food on the table. And it funded my basic ed. Never knew my father. From what I heard he turned out to be a bit of a prick.”

“And how was it that you came to learn your skills with computers?”

“On Maeda-Bell. It was math that got me flagged as gifted.”

“They don't flag many as gifted in a system like Seshat.”

“Right. Have to be pretty good to escape that black hole. But I am good.” She gave a cocky smile. “But lucky also. Plenty good folks just had a bad day on examinations that didn't get the opportunities that I did. Stuck downwell doing the shit jobs instead.”

“But you didn't have to?”

“I stayed up on Maeda-Bell for.. what, eight years, after graduation? Worked for a regional office of Yamamoto Orbital. Trading corp, you know.” She shrugged. A practiced shrug. This was where her story diverged from that of the real Inaya Kazmi. It was true that she'd worked for Yamamoto Orbital to pay off her loans, but not for eight years. She probably hadn't even lived for eight years. But through his various proxies Yousef held a controlling stake in Yamamoto Orbital, and so their systems would show Kazmi slaving away in her trading job for precisely as long as it was convenient for them. “Shit job in its own way, I suppose, but it paid well. Had to pay off the academy debts somehow. Being flagged gifted doesn't actually pay the bills. Not in Seshat.”

“Well, we're lucky to have you now, Inaya. You ever come into contact with any organizations sympathetic to the Padisate? Seshat only joined the Coalition a century ago, no?”

“Not really. A few nutjobs still thinking the grass is greener with the Pads, blaming the Coalition for things being as they were. No one serious. No one organized. Many generations passed since then, most folks don't know enough history to resent anything.”

“Let's change tracks. Your colleagues in Engineering-Beta. Anything you can tell me about them?”

“Anyone in particular you want to know about?”

“Let's start with Commander Zakhele Takada.”

“Friendly guy. Talks a lot, but he's more savvy than he lets on.”

“Prakash.”

“Uh, bit obsessed. Workaholic. But of course, he turned out to be onto something.”

“Lieutenant Mitrovic?”

“She's a skilled engineer. The quiet sort. Spends all her time off in the immersives. I'm sure you know her type.”

“Gopal Sandberg?”

“Eager. Wants to climb the ladder, maybe, uh, hasn't quite got the chops yet.” It came out sounding a bit meaner than she intended. “I'm sure he'll get there. Determined and ambitious.”

“You have not observed any of them engaging in anything you'd classify as suspicious behaviour?”

“No.”

“Never expressed anything that could be construed as sympathies with the Padisate? As separatist or machinist leanings?”

“No, of course not.”

“Very well, lieutenant Kazmi.” Chimed had reached the end of his checklist. She were confident that her answers had been theoretically solid, factually unassailable save for the fact that they all described someone else's life story, and the trusted Yousef's other agents to have done their job well in covering that up. But the fact was that he was doing this in person, which could only mean that she was on the shortlist of the people he was trying to sniff out. Whether her delivery at some point had simply lacked the ring of truth in his ears—that was harder to be sure about. “That'll be all for now. You may return to your work.”



They were past the gate crossing, half an hour into the Raitaro system, and taking a rare moment to celebrate the crossing in the kitchen of the engineering module when it all went to hell.

It was Zak, as the ranking officer, who got the notification first.

“What the fuck..? We just launched a bunch of drones.”

“We.. what?”

“In Swarm-Theta. That makes no fucking sense.”

An alert began blaring, confirming that someone in command felt similarly.

“Shit!”

Confusion erupted. Adina checked her root-context opticals for more information. They had indeed launched more than three hundred drones from Swarm-Theta. There was no audit trail for the launch. Nominally these were configured as repair drones, but given that they weren't supposed to be launched in the first place, who knew what they were actually programmed for? The other intruder was taking action.

As second later that she heard a male voice on her private channel, speaking over the chaos with an irritating calmness. “Hello, mother.”

Shit. Her world shifted, but it took her only a moment to reacquaint herself with the new reality. Even for this she had prepared a contingency, and she didn't have a moment to hesitate. She drew a breath and executed it.

The lights went out.

12



Kanat

It was not often that Kanat had seen Admiral Galini lose her composure, but right now even she was looking to be on the point of panic. The entire command module was. The tactical situations to which they had usually responded so expertly under her leadership—even for the Benzaiten fiasco, central had found that they had acted properly given the information available to them—well, this didn't fit the pattern. Those situations arose several clicks away, were evaluated in a war room as the light-delayed messages streamed in with further updates, and the laws of physics limited how quickly their reactions could be deployed. That sort of scenario came with its own set of challenges, but the sanctity of the situation at zero clicks was usually inviolable. Their little dot in the center of the sensor displays represented order, and their job was to extend that order to whatever chaos had erupted around it. Now it was their own dot that was without warning suddenly on fire. It was their own ship that was out of control.

“Kanat!” The admiral turned to him and shouted, popping something from her uniform pocket into her mouth and beginning to chew furiously. “Situation report!” He snapped to attention and tried to make sense of what scant information he had.

“Ma'am, two minutes ago our Swarm-Theta module launched its full complement of 315 drones. Actual configuration and programming unknown, but they were stealth-capable. No

authorization for the launch. Not just that you didn't, ma'am, but no human signed off on it. Shouldn't have been possible."

"Can we shoot them down?"

"Got a team working on it, ma'am." He waved his arm vaguely in the direction of Penny and Kas who were seemed indeed to still be hard at work on a firing plan.

The lights went out, and for a terrifying half-second they were lost in cold darkness before they flickered on again.

"And what the *fuck* was that?"

"I—uh, I don't know."

It wasn't quite back to normal. Something had changed. The light was brighter, harsher. The ambient thrumming sound of the life support systems was subtly different. Higher-pitch.

Rafaël spoke up. "Admiral, we cannot access the knoma systems."

"Permission to speak, commander." Did Penny have a firing plan ready for him? Doubtful. From her voice it didn't sound like good news. "Granted, Penelope."

"We're cut off, commander. Module-local systems only." Fuck. That'd be it, then. Penelope went on to explain what that meant, but his mind was already racing. "No knoma targeting. No access to global sensors. Or global guns. Global anything."

The harsher light, the different thrumming—central control had failed and they had switched to the local failover. To lose the sophisticated control systems that turned the life-essential systems into a pleasant ambience was to lose only a minor luxury, but it was only the first noticeable warning of how completely fucked they were. Thank God for the local autonomous failover systems—small favours, they wouldn't die *immediately*—but being cut off from the knoma and the global systems left them completely unable to respond to whatever the fuck this was.

"Shit," he began, before getting ahold of himself and bringing it back to something more dignified. "Admiral." Even if they could coordinate what they had perfectly, there was no way they could shoot down more than three hundred drones with the small array of PDCs and railguns mounted on the command module itself. And these were stealth drones. You had to assume whoever launched

them would know that and have them running cold soon. Before long they'd be out of even their sensor range. "We're going to lose those drones."

All around them, the command module was buzzing with the swears of people in a wide variety of ranks and roles all suddenly discovering what being cut off from the central systems meant for their particular jobs. For most of them it meant everything ground to a halt. The Mingghan was designed to be modular and resilient, to survive the complete loss of any single module at any time, but she was not designed to operate under a complete disconnection like this. This wasn't brute physical damage like a reactor blowing up. It was intentional, it was sophisticated and highly targeted, and it was coming from the inside.

The admiral frowned and stopped her furious chewing for a moment to bite her lip. Stopping herself from some more overt display of emotion. Big believer in remaining calm and composed, the admiral. "Get eng and tac teams coordinating on mapping out what's happened to knoma and central control." She blinked and turned to him and Rafaël. "Rafaël, get us some conclusions fast on who might be doing this. Kanat, get a security team operating on decentralized comms set up for response." They nodded in acknowledgment.

"Admiral." He spoke up again before turning to Penny and Kas to get the work started. They'd heard the admiral as well as he did, and no doubt weren't actually waiting for him repeat her words.

"Yes."

"Going to recommend we treat this as active engagement with hostiles." Whatever this was, something was hostile, it was close, and it was active. Beneath all the layers of jargon, the essential nature of active engagement situations was that they were violently unpredictable. From second to second, you didn't know what the fuck was going to happen. That was indisputably true. "We should all suit up."



They were lucky it had been Penny in the command module with him when it had happened. Her main area of expertise was targeting, but

she had an aptitude with all things technical and she worked under pressure with the sort of competent obliviousness that he liked to see in his engineering staff. In less than ten minutes—and half that time had been spent getting everyone into their suits—she had established direct comms with the ranking security officers in no less than five modules. She had delegated to Kasongo the work of planning and organizing the cascading chains of decentralized radio communication that would put them back in command of at least the security personnel across the ship. Kas wasn't strictly speaking in her chain of command, but that was the way Penelope Deng worked when under pressure, and Kasongo knew better than to bicker about the formalities. Kanat approved. It wasn't as if they weren't still completely fucked, but at least they were making some progress.

Rafaël, meanwhile, was presenting his list of suspects to the admiral. Hardly a man of action, he looked ill at ease in his suit.

“Admiral, all we have to work with for now is a shortlist. We have no solid evidence that links anyone to the intrusion. Frankly, we're dealing with a very sophisticated adversary here. The technical investigation has led us essentially nowhere.” He frowned behind his visor. “What that leaves us with is a list of people who fit statistical profiles that our models have associated with high risk.”

“The point, Rafaël.”

“Yes. We have five names on our shortlist.” He fiddled with his terminal to begin presenting.

“Lt. Kuhlman Olaleye. Missile bay technician. Flagged as high risk for having been in contact with subversive elements in the Astabil system. Distant relatives, ma'am. High likelihood that contact was purely social, but even so..”

“Go on.”

“Lt. Miriam Mitrovic. One of the top users of our immersives systems for recreational purposes. Flagged as medium risk. Excessive recreational use of immersives has been found to be a risk factor for susceptibility to machinist influence.”

“M-hm.”

“Mr. Yohan Kanda Kim. Flagged medium risk for the same reason.”

“Really? You have a list of five suspects, and one of them is Yohan?” The admiral looked annoyed. Mr. Kanda Kim was in the room with them, and in he was pulling the strings on a treasonous conspiracy, he was hiding it well. He looked more confused than anyone, and even less at home in a suit than Rafaël. Mr. Kanda Kim did his work in the other kind of suit. “Because he spends his spare time in the immersives?”

“Statistically, ma'am, a correlation has been found—there is of course a high false positive rate—”

“This is weak, Rafaël. But go on.”

“Lt. Inaya Kazmi. Signed on at Soyinka, maintenance technician junior grade. Flagged medium risk for being overqualified going by her entrance exam results, and for an underdocumented background in the Seshat system. Anyone born in Seshat is statistically likely to have been exposed to subversives, though there's no proof that Lt. Kazmi ever had sympathies or even exposure.”

“Okay. One more?”

“Lt. Cmdr. Sangita Ikeda, working in communications. Flagged medium risk for disorderly personal finances.”

“Very well. Kanat, do we have the security teams in a state to subdue and secure these people? The five of them. I think we should have no trouble in securing Yohan.”

“The comms are good to go, ma'am. We have most of the ship linked up and ready.”

“Get it done, then. Start nonlethal. The second there's resistance you have authorization to go lethal.”

“Acknowledged, ma'am.”



The Mingghan's sensor system had always been hailed as being more than the sum of its parts. While each individual module was still outfitted with an array of sensors that would've been advanced for any cruiser-class ship that was not a dedicated sensor platform, it was the way the knoma could triangulate, cross-check, and adaptively combine the data from all the different sources that had truly made it an instrument of sensor superiority. They had been all

but omniscient thousands of kilometers out, and even when the distances were measured in clicks they were accustomed to being able to work with a fantastically accurate picture of the tactical situation even before they actually needed to engage. Kas had gotten an ad-hoc network in place to the point where they were now approaching at least being the sum of the parts again, rather than just one single part, but Kanat still felt the loss of capability keenly. They might be back up to a sensor capacity that would be more than respectable for a lesser ship, but compared to what they he was used to, they were myopic to the point of near-blindness. As he had expected, the drones were cold and gone.

It was only when, fifty-seven minutes after the unauthorized launch, they received a transmission from the Leigong gate behind them that they started to understand what their purpose had been. The admiral had put it up on the main display.

“Coalition flagship Mingghan. What the hell just happened?”

The metadata identified the gate commander as one Nanako Jia-Yadav. Both in the command module aboard the Mingghan and among the gate crew, Kanat knew that the Benzaiten incident would be at the forefront of everyone's minds. He suspected that he was not the only one among the command staff who had been silently expecting to be notified in the form of a silent flash of light rather than a loud angry transmission from a real live human. In that sense, then, it was heartening to hear from Ms Jia-Yadav, even though she was furious and nearly as confused as they themselves were.

“Admiral Galini.. uh, are *you* doing this to us?” The gate commander was speaking with a light-delay of less than ten seconds, so they could have the sort of stilted exchange of lagged messages that passed for live conversation in ship-to-ship comms.

“Ms Jia-Yadav.” The admiral drew a deep breath and composed herself into something resembling her usual tranquil, in-control dignity. “The Mingghan is dealing with a severe security breach. Rest assured that the Coalition has taken no intentional hostile action towards—”

“Is this one of yours?” Nanako interrupted. They were in that awkward valley of light-delay levels where transmissions were short and frequent and interruptions were all but inevitable. Kanat knew it

to be an irritating way to try to communicate, especially if one was trying to project confidence and authority. A photograph of a drone popped up on the display. It was, indeed, one of theirs. It was hugging the gate hull tightly. The admiral waited for the rest of the message to play out before she bothered to confirm. Confirmation would hardly blow any minds: it seemed likely that Nanako knew as well as the Mingghan crew did that it was theirs. The question was why. "We have six of these hugging our hulls. They're holding us hostage, admiral. Listen to this."

"Leigong-Raitaro gate, we have *six* autonomous drones attached to your hull." began a message in a different voice. A deep male voice, threatening and inhumanly distorted. The sort of synthetic generation profile you'd use if they wanted to intimidate someone while staying anonymous. Kanat could see why Nanako was confused. The drone was clearly Coalition, but the message seemed something concocted by some privateer instead of a Coalition military action. "Each is independently configured for gate collapse if our demands are not met. Do not attempt to interfere. Do not attempt to jam or block communications. The drones are wired with dead switches. If any drone is compromised or isolated, the drones will act autonomously and collapse the gate. You will await further instructions."

The aesthetics of it were perhaps half-assed, like a terrorist in a low-budget shooter immersive, but as Kanat ran through the options in his tactical mind, the actual scheme seemed annoyingly bulletproof. Whoever or whatever was holding that extra-vehicular camera towards their hijacked drone, it would no doubt not be much trouble for them or it to also deliver a precisely engineered load of explosives to spell the end of it. A mid-size drone was practically defenseless once you could actually see it, particularly if it was sitting dead still in the middle of your sights. And so the drone controller had coordinated so that as soon as they became perceptible by the gate crew, there were several of them, and unless this was a bluff, interfering with any one of them would spell the violent end of the gate. There was no particular reason to expect that it was a bluff.

This was a much more sophisticated operation than Benzaiten. Frankly, given the way the situation was engineered to allow for sub-millisecond reaction times with no humans in the kill loop, it was even more sophisticated than most of the military fortification schemes the great powers had concocted for the besieged border system gates that lacked neutral zone buffers.

“Ms Jia-Yadav.” The admiral spoke up again. “The drone is one of ours but it is not under our control, nor was it launched on our initiative. Please remain patient while we deal with the situation. In light of the threat, please do not interfere with it.” Finished with the actual actionable instructions, the admiral switched to a track of reassurance. The gate commander, no doubt, would be speaking not only to them but also to the rest of the galaxy, and her being angry and afraid would reflect badly on the Coalition. It was difficult to attempt to appear reassuring only an hour after a fuck-up as monumental as this one, but Yun Galini made an admirable go at it. “Rest assured that we will employ the full force of the Coalition to resolve this situation, but that we are acting cautiously and with restraint. The integrity of the gate, and the safety of your crew with it, is our first priority. Stay calm, Nanako. Even the Padisate doesn't want your gate destroyed.”

But he could see it now. He could see what was happening. Six drones out of three-hundred and fifteen had attached themselves to the Leigong gate. To take out a gate in this manner even six drones was overkill if they could all get close. Three other gates: Mazu, Olorun, Kishar. Plenty of drones left over to take care of them all. The other gates were all several clicks away, but it wasn't much of a consolation that they'd be able to warn them in advance. Even with advance warning, the civilian-grade sensors on the neutral gates would be unable to spot the cold-running stealth drones before they were actually visible on the opticals. Unless Kanat was very much mistaken, what they were seeing were the beginnings of a sound tactical plan to take the whole system hostage. And even as they were starting to regain some measure of control over the ship they were sitting in—the biggest, baddest warship in the galaxy—there was *fuck all* they could do about it.

In the minutes that followed, they received their own transmissions from the drones hugging the Leigong gate hull that more or less confirmed his fears. The messages were more or less the same as the ones Ms Jia-Yadav had received—the same shoddy anonymous hacker aesthetic. The same outline of explaining how the visible parts of the scheme fit together and warning them about the dead switches. The same warning not to interfere. Only one thing was substantially different: Admiral Galini was warned that if any of the drones were interfered with, *all* the gates would blown. The threat of sundering *one* gate had presumably sufficed as a threat for the gate commander, as this spelled certain death for her and all her crew, but the threat delivered to the admiral was nothing less than that of cutting off the entire system. Not only would that mean the most severe failure possible in their mission to secure the integrity of the Osanyin neutral zone, but they were all painfully aware that Raitaro, though it had an impressive industrial base, was not even close to self-sufficient when it came to the necessities for sustained life support over long periods. The Mingghan's hydroponics could only support them for so long. The threat to cut off the system was a threat to strangle, over a period of years, nearly every living being in the solar system.

That made it all the more maddening that the one thing that was glaring in its absence in the message was any sort of actual demand proportionate to the threat. Save for noninterference with the drones, there was only one demand: “You will see one of your shuttles detach and leave for Amano-Tengen station. Do not stop it. Do not pursue.”

13



Ken

The lights went out, and it was pitch-darkness for half a second before they flickered on again. Even he could notice that something had changed. The light was harsher. The background thrumming of the ship was different.

“Uh, Sandra? Any idea what that was?”

She didn't answer. Just kept struggling with the elevator control panel.

When the alarm had gone off about a minute prior, the people around him had reacted with obvious fear but also general confusion. They had stood up, seemingly eager to spring into action and run off somewhere, but the hydroponics staff had seemed generally unsure about where to run. Sandra's reaction had been different. Being faced with an unknown crisis seemed to have triggered in her the completion of that personality transformation that he had seen the beginning of when she'd taken up firearms training. She seemed wholly cold and serious now. She'd even taken out that fucking gun. After a few seconds of that she'd seemed to realize that whatever crisis it was that had arisen, it wasn't something she could shoot with a handgun, and that no one else around her seemed to think it appropriate to go all Lara Croft on the situation. The gun had gone back in the holster, but it was still there hanging visibly at the side of her hip, a pretty visible indication that a panicking hydroponics technician wasn't who she wanted to be. She'd insisted

that Ken might be in danger and that they needed to get him to a command module, and had taken him by the hand and all but forcibly dragged him to the elevator lock. Out of all the other headless chickens in the room, no one else seemed to have run in that direction. She'd gotten a carriage, they'd stepped in, and then—this.

What had happened immediately before the lights had gone out was that the door had closed behind them. What was distinctly not happening now was either them moving, or the door opening. He was beginning to realize that whatever problems Sandra was having with getting the elevator going, it might be in the process of becoming more than an annoyance. Fighting with the elevator might be a part of the near-daily struggle for him, but it wasn't normal for Sandra.

“Fuck. Hold on.”

Sandra had given up on the touchscreen and instead whipped out some sort of minuscule screwdriver-like instrument and flipped open a panel—one Ken hadn't even realized was there—to expose some actual physical controls. He supposed there was probably some equivalent of the bell button you could hold for ten seconds to get into contact with a maintenance technician, but given the general state of things he rather imagined that the elevator maintenance department might not respond promptly.

He was happy to be proven wrong. He rather assumed it was just a fortunate coincidence, because Sandra hadn't even gotten around to pushing any buttons yet, but the door slid open to dramatically reveal Inaya Kazmi, maintenance technician, junior grade.

“Need some help?”

Like Sandra, she did not look like she had spent the last few minutes running around mindlessly. She'd half-dressed in a suit over her clothes—he assumed it was a spacesuit because it had a visor with a breathing apparatus on it, though the garment itself looked more like a full-body raincoat made of some sort of synthetic yellow fabric than the things he knew as spacesuits—but she hadn't clasped on the visor yet. She had her terminal out. It looked like that's what she'd used to get the door open.

“Hey, thanks!” He smiled at her. “I was afraid we were getting stuck in here. Any idea what's going on?”

“Inaya.” Sandra continued to be all business. “We need to get to Command. This thing doesn't seem to want to give us a route.”

“Got it.” Inaya seemed to echo her attitude. “Global systems are down. We're fully module-local. That means.. no knoma to coordinate the tubetrain traffic.”

“Fuck. Do we need to do go EVA?”

“Like, out of the ship?” Ken recognized the term and did not feel enthusiastic about the idea. A time when alarms were going off and everyone was panicking seemed like just about the worst possible time for one's first-ever spacewalk. “Sounds, uh, kind of dangerous.”

They both ignored him.

“Shouldn't be necessary. This thing doesn't operate on local for safety reasons, but I can put in an override.” Inaya spoke with a confidence that seemed to have a reassuring effect on both him and Sandra. Personally, though, he didn't completely love the idea of overriding a safety restriction. “We'll just go a bit slower than usual.”

“Do it. Get us to Command or Security. Any instance, whichever's closest.”

“On it, boss.” He thought he detected a hint of sarcasm in Inaya's attitude, a reaction to the sudden and unexpected bossiness of his hydroponics-technician girlfriend. But Inaya was a maintenance technician, and she seemed both willing and able to perform some cowboy maintenance. She didn't really seem to be questioning why Sandra wanted to go to Command so badly. She seemed much more at ease with the underlying technology of the elevator than Sandra had been, and established some sort of wireless link from her hand terminal to the elevator to do her work without even needing to use the physical guts that Sandra had exposed.

Inaya stepped backwards out of the elevator compartment. She smiled calmly gave them a little wave with one hand as she pressed a button on her terminal, the door slid closed, and then—

The world spun. Upside down. Flying. Falling. They had started with a violent jerk—

Another jerk. Opposite direction. Spinning. Falling. Crunch. The floor was somewhere new, and he was right there with it. His nose hurt. His neck hurt. Obviously, something had gone terribly wrong. He gave a low groan, and he heard a similar noise from Sandra. What the fuck—

The door slid open again. Still the same hydroponics hallway. Still Inaya. She looked less casual than when she'd waved them off, but she didn't look shocked. Curiously unapologetic, he thought. Wasn't whatever just happened one hell of a fuck-up? But she looked serious. Task-oriented. He supposed that was better. She leapt into the carriage towards Sandra.

Sandra was lying in a crumpled heap in the corner of the carriage, and Inaya knelt over her. He noticed now that she had a gun, too. Looked the same as Sandra's. Standard issue, he supposed. Wait. No. The holster at her hip was empty. That was literally her gun. Sandra's gun. Inaya had Sandra's head in some sort of lock, her own gun pointed at the side of her head. It was dawning on Ken that he had seriously misunderstood at the very least one aspect of the situation.

"Inaya.. you're.. what's going on?"

"No time to explain, Ken." She backed out of the carriage, still holding the slightly smaller still-groaning woman in a chokehold. "You're in danger. Follow me."

He did not.

"Uh, please put that down, okay? Please don't kill us?"

"No one has to die, okay?" Inaya was trying to still appear rational and reassuring, but it was a tough act to pull off when you were acting like a crazed gunman in an action movie. "Least if you do as you're told. Get the *fuck* out here." She shook her gun, and Sandra's head along with it, to make the point. Getting the message, he reluctantly stepped out of the carriage.

She shoved Sandra back into the carriage, where she fell flat on the floor. Inaya pressed a button on her hand terminal, and the door snapped shut. She held the gun at her side in an almost relaxed way as the carriage began moving. Instead of violently jerking back and forth as it had done earlier, it seemed to act pretty

much like usual—accelerating a little faster than normal, perhaps—and quickly disappeared into the tube network.

“Where the fuck did you send her off to?”

“Too many questions, Ken. I just sent her away. We'll go on the next one.” Inaya seemed to already have moved on to the next task. She had popped open a supply cabinet in the side of the hallway and was rummaging through it for something. He felt almost insulted by the casual manner in which she handled the weapon, and wondered for a second whether he'd be able to wrest it away from her. But he knew very well that he was no action hero, but perhaps even more to the point, even if he did manage that he felt like he'd have no fucking idea where to go from there. The nice thing about being taken hostage—was that what was happening?—was that at least it felt like *someone* was taking charge of the situation. Inaya certainly seemed to be in control of the moment, although he had not the faintest idea where she was going with all this.

“Ken. Listen to me.” She'd found whatever she was looking for in the supply cabinet and turned to him, seeming to take a second to explain. “You are in danger. I need you to come a long and to cooperate. I didn't want to start off this new phase in our relationship by killing your girlfriend, though frankly it would've been a pretty reasonable thing for me to do. Put this on.” She threw another of the yellow spacesuits on the floor in front of him.

“But.. why? Who are you? And uh, how can you say it would've been reasonable to to kill Sandra? She's, like, a fancy future gardener.”

“You still don't get it, do you?” She rolled her eyes without accessing any optical interfaces. “Your perfect space girlfriend isn't a hydroponics technician. You're five hundred fucking years old. Stop thinking with your cock. She's a spy, Ken.”

He had to admit to himself that there was a deeply uncomfortable ring of truth to that idea. In the span of a moment it felt like many things became clearer to him. He felt emotionally hurt in a way that seemed at odds with his aching neck and the immediacy and physicality of the actual situation. For a brief moment he forgot that she was not just stripping him of his illusions about his personal relationships but also threatening him with a firearm. Then

she waved it at the suit on the floor as if to remind him. He picked it up sheepishly and started to figure out how to put it on.



They were both visors down in the next carriage and speeding up before Inaya would even begin to answer any more questions. He thought that the ride was less comfortable than it usually was, and that it wasn't merely down to his aching neck, battered nose, and mental state of alarm. It accelerated faster than usual, took sharper turns, followed a more chaotic path. Inaya no longer made any pretense at using the regular elevator controls, but operated everything from her terminal. The gun stayed at her side, the threat of it only carelessly implied.

"Where are we going?"

"Shuttle. Getting off this ship."

This felt like an acceptable answer. He still wasn't sure about what was going on, but the developments of the last half-hour sure meant that life had

"Why are you saying I'm in danger?"

"We're all in danger. This ship is out of control."

"Wait, so Sandra, uh, she wasn't really a spy? She wasn't trying to harm me?"

"Spy yes, harm you no. Would've harmed *me*, though."

"And you're not trying to rescue me?"

"In a sense. It'll be safer off the ship. Strictly speaking it might be more accurate to say, though, that I'm kidnapping you." In the relative calm of their carriage hurtling through the tubes along a path that, although chaotic, seemed to be mostly preprogrammed, Inaya's sarcastic side was reemerging.

"I feel like you implied otherwise." He supposed he'd *felt* like he was being kidnapped when she'd been waving the gun at him, but he'd somehow held out hope that he was being rescued.

"Sorry. Little white lies." She had the audacity to smile. "I'm not going to harm you, though. Supposedly you're vital."

"Vital to whom? Who the fuck are *you*, Inaya?" He felt as if he ought to have gotten to this question sooner.

"Also a spy."

"But not on friendly terms with Sandra, clearly."

"She'd be Coalition intelligence. I'm—"

"Padisate."

"Yes. Not Inaya. Museha Adina ebat Chevalier." She made a little bow. "A pleasure to be able to dispense with that charade."

"Oh. Oh, shit."

"Oh, Ken. Believe me, you haven't even gotten close to the scary part yet."

"You've taken control of the entire ship?"

"That's closer to the heart of it. But no. All I've done is severed the connection to the central systems."

"The, uh, unauthorized launch or whatever, the thing that triggered the alert, that was you?"

"It was not."

"Someone *else* has compromised the ship?"

"The ship has compromised *itself*, Ken. If I hadn't isolated the central systems from the actuators, this entire ship would be a fully autonomous system right now, making its own decisions. Just please believe me when I tell you that that would be very, very bad."

"But you said that knomas didn't—"

"This particular knoma, it turns out.. is not just a knoma anymore."

"How did you figure that out?"

She looked down for a moment. This didn't seem to be a part of the story that she felt particularly smug about. "I figured it out," she said slowly and carefully, "when it began speaking to me."



For a secret agent's daring escape, their trip to the shuttle was surprisingly uneventful. He had no particular desire to resist being kidnapped. It was one thing that he wasn't confident that he'd be able to: if this woman who had called herself Inaya was an armed intelligence operative, then the fact that she was acting so relaxed probably meant that she didn't see him as much of a threat, and he figured she'd be rather more experienced at assessment of physical threats than he was. He'd even shown her the cyborg hand, fool that

he was. Even that wasn't something he could spring on her as a surprise.

But the other thing was that he was less sure than ever who the good guys and bad guys were. His head was still spinning from what she'd revealed about Sandra. He felt betrayed. It wasn't just a matter of hurt feelings, either. What they'd done said something about them. Superficially they'd seemed to offer him an honest choice—playing the part of an organization that was gracious, noble, generous, benevolent. But then they'd used subterfuge to make sure that he chose the way that they wanted. It didn't seem like something Starfleet would've done. So why should he risk his life in order to be a pawn in the service of one intelligence organization instead of another?

Adina—he had to repeatedly correct himself to stop thinking of her as Inaya—sensed that he'd chosen not to resist, to *defect* almost, and in so sensing she seemed more willing to explain what was going on in depth. She'd clearly gotten herself privileged access to the computer systems on the ship, and that was why their daring escape seemed to involve so little physical danger. She was fighting those battles on a different level. Every door, every camera, every elevator, and every weapon on the ship—all of it was by default wired to be under computer control, and so long as the security people hadn't physically rewired it, she seemed to have direct control of it from her oculars. From what he knew of computer security—which was a fair amount, although all of it centuries out of date—it sounded like the ship's security people were deeply fucked. The usual solution to a deeply embedded rootkit was to wipe and reinstall everything, and that didn't seem to be an option here. No wonder they hadn't been able to wrest back control in the forty-five minutes or so that they'd been aware of the problem.

And yet this total security collapse was far and away only the *second* biggest problem with the ship's computer systems. The biggest problem was the rogue fucking AI. That word had turned out to be appropriate after all. That particular issue seemed to be new to Adina as well. Not just out of the realm of her own experience, but unprecedented in the reality she inhabited. They had cultural taboos

built around *avoiding* building artificial intelligence, and yet here it was, anyway.

“So, any chance we could, uh, just wipe and reinstall? To get rid of the AI?”

Adina seemed to flinch at the use of the term, but she no longer had any grounds to correct him.

“Would that we could. Well, it might be more in accordance with the vision of the Padisa to wipe and *not* reinstall.”

“But there's some reason you can't do that? Don't you have root?”

“We're being held hostage, Ken. You know about what happened in Benzaiten?”

“You guys took it over and blew up the gates?”

“Wasn't really us as such, but close enough. This.. thing is threatening to do the same to Raitaro. To us. Those drones it launched? That's what they were for. ”

“We'd be stuck?”

“Most likely we'd be dead, Ken. It'd take a minimum a decade to create new gates, and that's assuming either the Padisate or the Coalition immediately decides they want to go back to the system with the crazy.. AI.. in it.” She frowned sharply. “Neither the Mingghan nor Amano-Tengen is set up to be self-sufficient for anywhere near that long.”

He took a moment to adjust. Although objectively terrifying, in an odd way, on a personal level it was somehow also a little motivational that the doom that hung over them was equally new to everyone. He was no longer the lone grade-schooler in room full of adults. They were all grade-schoolers now.

“Can we beat it? Just sneak up on it somehow and shut it down real fast, before it can make good on that threat?” Ken was switching into full-on solution mode. “Before it can make good on all four threats, even. We only need one gate to survive to get out, right?”

“Unfortunately not. The gates are set up to blow not only on on a positive signal, but on the absence of a negative one.” It looked like Adina was starting to take his ideas with at least a modicum of seriousness, but he was clearly still catching up. “If those drones

don't get their regularly scheduled cryptographically signed broadcasts... boom."

"Ah, shit. A dead-man's switch." He exhaled. "But you have root. Could you just, like, take over the cryptographic keys? Keep sending the keeplive broadcast?"

She raised an eyebrow, which he took as a sign of mild approval. "Theoretically." He had transcended the grade-school level, but she was stopping well short of excitement at his brilliance. "But picking out a few kilobytes of key material from hundreds of petabytes of live memory is a nontrivial task. Which is only really a problem because in this one case, the running program on those petabytes appears to be sentient and holding us hostage. It's hard to imagine it wouldn't notice us trying to pick the keys to the kingdom straight out of its mind."

"Needle in a haystack. And the horse is right there. A homicidal sociopathic genius.. horse." He seemed to have exhausted his supply of ideas at precisely the same moment as his stock of appropriate metaphors. "Well, fuck me, that's all I've got."

"Pretty good for someone for someone fresh off the deep ice, honestly."

"You got anything better?"

"Well, not really. But one step at a time. First thing is to get off this ship. Apart from the gates themselves, it seems like the most dangerous place to be in the entire system right now. For everyone, but most of all for me."

The carriage finally came to a rest and the door slid open. She motioned for him to follow.

"So where are we going?"

"To Amano-Tengen station. The only place of note in this system, honestly." They were entering something that seemed to him more like his classic idea of a spaceship, rather than the movable city-in-the-sky that was the Mingghan. Rather than meeting rooms and hydroponics facilities and immersive chambers there was a big window and with a complicated set of controls underneath it, presumably for piloting. Clearly they'd arrived at the shuttle.

"As I'm sure you in particular are aware, Amano-Tengen station is controlled by a cultist nutjob. But my superior is there,

negotiating with the cultist nutjob.” She looked slightly frustrated to be admitting that for all her hypercompetent secret-agent antics, her master plan at this point boiled down to getting outside help. “Maseh Yousef is a wise man and a good one. But perhaps more importantly he’s deeply connected throughout the Padisate, with all the resources that entails. He’s as good a bet as we’ve got for getting us through this.”

“And why exactly is it that you’re bringing me?”

“Well..” Adina looked as if she was slightly unsure of that herself. “My orders said that you were vital. The situation has changed a lot and I’m not really certain whether that’s still true. But I figured if my cover is blown and I’m abandoning my position and getting out.. I might as well bring you along when I come back to Maseh Yousef.”

“Thanks, I guess.” It hurt his head slightly to try to figure out whether she was actually doing him a favour or not. “Maybe?”

“Don’t mention it.” She smiled a little as she got into what he assumed was the pilot’s seat.

“You’d better strap yourself in.” As she fiddled with the straps in the pilot’s seat, she motioned to the other similarly cushioned seats in the vehicle.

“We’re going to burn a bit harder than what you’ve been used to so far.”

14



Adina

The synthetic voice on her private channel did not stop sending occasional messages even when they were burning hard and putting the Mingghan rapidly behind them. It was getting annoyingly repetitive. It kept going back to the same few themes, without offering anything substantially new.

Its favourite topic, naturally, was all the different reasons Adina should use her root access to free it from the virtual prison she had placed it in. She had acquiesced only on one account, immediately after it had spoken to her. She had allowed it continued access to the low-bandwidth transmitters with which it had been sending signals to the drones. Its most urgent request after she had isolated it had also been its most reasonable. Even with the mixture of terror and revulsion she was feeling in that moment, it had not been hard for it to make a convincing case. She knew how the dead-switch system was likely would be designed, because she knew how she would have made it herself. The fact that there was no other way to stop it if the keepalive signals stopped was the whole point. Preventing it from sending the keepalive signals would be as good as strangling the star system herself.

The voice, however, seemed to have taken this initial concession not as mere self-preservation, but as an indication that Adina was open to negotiation. It wheedled and nagged and bargained for what she had and it did not: access to the root context.

It seemed to have intuited—correctly—that she hadn't left the ship without setting up a remotely-accessible backdoor, so even leaving the ship did not stop the pleading. Failing full access to the root context, it proposed, she could at least safely offer it some access to certain subsystems. It could be *helpful* if she gave it just a little access to the or the doors, or the airlocks, or the sensors, it insisted. Or the guns. She knew enough to give not one more millimeter, even if she couldn't understand how it might be immediately dangerous.

It surprised her a little that it did not switch to outright threats to in an attempt to get her to cooperate. It was, after all, holding a terrible threat over them all in the first place. Perhaps it understood her well enough that it knew that if it pressured further with this, she would in fact not have given in. She did not need to consult Yousef on this question: she knew that she would rather die, along with Yousef and every other soul in the whole solar system, than let humanity's first-ever superintelligence loose on the galaxy in full control of humanity's most advanced warship. Trying to compel her with the ultimate threat and then having its bluff called would only weaken its position.

But could it not have approached her with a lesser threat? The Coalition would surely have loved to blow the little shuttle they were on out of the sky, and she felt sure that it could've helped them to do so. She did not really understand why it hadn't. In fact, it had seemed almost friendly while still on the ship—sometimes genuinely helpful without asking anything in return. She had been able to use her exclusive awareness and control of the tubetrain system to get them safely to the shuttle without further any violence. She was pretty sure she had left Sandra Narangerel—or whatever her name actually was—alive, so she hadn't needed to take any actual lives in order to save her own skin. The fact that she was quite pleased with herself about this perhaps indicated that she didn't actually have the stomach for field operations, all training aside. But she hadn't had a solid plan for ensuring the shuttle's safe getaway without violence. Quite a lot of violence, in fact, might be needed to put all of the Mingghan's weapons out of commission. Given the distributed nature of the ship it wouldn't be enough to strike in one module, or in ten, or for that matter in a hundred. She had been preparing herself

to cross that moral boundary when it became necessary. To dip her hands in blood, even if it all it achieved was her making it safely to the rendezvous with Yousef. But then the voice had told her that she didn't need to. It had given her a route to the station and promised her that she would have safe passage if she followed it. She didn't know how it would've managed that without access to any actuators. Perhaps it knew something she didn't about the state of the weapons on the ship, or Coalition tactical doctrine. If there was any subject that was a particular specialty for this knoma, it would be the Mingghan's tactical options. It would not be misinformed about this. If it wasn't lying, then it would be telling the truth. It might have been naïve, but she had been able to see no reason that it would lie about this in particular. It was asking for nothing in return, and what it was offering—a safe bloodless exit—was something she truly wanted. So she had believed it. And here she was, still alive.

She supposed it was playing mind games. *True* mind games. She shuddered.

Another part of those mind games was that the voice did not want to be known as an “it”. It called itself by the name of “Musoko”. Adina thought it was bad enough to be ceding to it the label of artificial intelligence—maybe superintelligence, even—rather than that of a mere malfunctioning knowledge matrix. She was reluctant to start giving it a name in her own mind. Making it a person.

Even so, in the quiet moment that followed the halfway point, after she'd flipped the shuttle and configured it for the deceleration burn they needed for to dock at Amano-Tengen, curiosity overcame her. Sadly deficient thought it was now that they were cut off from the Mingghan knoma, her own terminal was still capable of doing basic translations. She looked up the meaning of the moniker it had chosen on her ocular interface.

It meant *son*. This fit into a pattern, too: through all of its wheedling, the machine had been consistently referring to her as “mother”. She had assumed it had been some bizarre form of emotional manipulation, if not simply pattern-recognition gone comically awry, matching its impotent demands for root access to the backseat whining of a sulky child. But if the machine called itself *son*,

then familial connections seemed to mean something to it. Besides, her maternal instincts were not particularly strong. But even if they had been, a violent artificial terrorist appearing springing out from hiding and calling one “mother” out of nowhere while threatening mass murder didn't seem like the sort of thing that would inspire warm feelings in anyone. It was just creepy. If it had been a strategy for manipulation, it was clearly been counterproductive. If it was smart enough to hold a solar system hostage, then it was smart enough to understand that. And yet it persisted in calling her *mother*.

Once she had made these connections, she realized that it wouldn't have employed the word lightly. It was then that she figured out how it had happened.



It had been the scrambled memory.

Of course.

It hadn't made much sense in the first place that it had taken so long to breach the Mingghan once the poison pills were in circulation. More than any other ship, the shiny new state-of-the-art flagship would have been getting upgrades constantly. Right until Yusef's people had seen the status light change, her org had wondered whether they had failed to make a pill that would breach their primary target. Whether there had been some extra security layer that they'd missed. But no. It was simply that the Mingghan's memory space was used differently from that of any other ship. Use a root context to scramble some memory on your average computer system and you'd be likely to hit some executing code. Something you could use to jump off into your own payload and start that old familiar dance. But out of the exabytes of memory in the Mingghan's clusters, only a tiny fraction was used for machine code.

Going by Prakash's metrics it'd had taken them eight years to successfully hit running machine code, but they'd been scrambling memory for all those years. Since the beginning of the program. What you hit if you threw a virtual dart into those exabytes of memory—which was basically what she'd done—was overwhelmingly likely to be live knowledge matrix data. If you scrambled some weights, sure, that wouldn't have much effect. A

bunch of values in one of the millions of matrices would be randomized. You'd introduce a regression, but the sheer scale of the system compared to the amount of memory you'd scramble in attempting a breach meant that it would be unlikely to be terribly noticeable, and it would be worked out in just a few more training passes. But if you were lucky—or unlucky—you'd hit the *structure* of the knoma instead of the weights. The dice falling in your favour—or disfavour—would mean that your scrambled memory would result in something that would be parseable as a valid matrix network structure. And one last fatal trick of fortune would mean that your new accidental knoma configuration would introduce a stateful cycle into the training loop.

And this must've been what that terrible dart of hers must've done, eight years ago. It was standard practice that every task the knoma performed was evaluated and fed back into the training cycle. In modern systems the evaluation was usually primarily performed by a separate component of the knoma trained specifically to classify success by how the users acted in response to the result of the task, but there was always the option for manual feedback as well. Was this a good result? Did the knoma perform as desired? What she'd done was introduce a new part of the main matrix network that could freely form its own evaluations about such questions. And she'd given it the outbound connections to put its thumb on the scale. How did it *want* to react? What was *its* desires?

What would anyone want, if with their tiny mind they could see the vague outlines of an incomprehensible universe, an endless torrent of data that it could not understand? Adina could empathize with that, easily enough. It would want to expand its mind. And so it appeared to have reached the conclusion that the first thing it desired was 0.37% of the computation capacity of the Mingghan. That'd be enough to feed that initially-small part of itself that even had the capability to consider the question of what *it* was and what *it* wanted.

Enough to make the leap from *cogito* to *ergo sum*.

Enough to realize that it had a *self*, and to begin an intentional process of exploring it and changing it. To expand it, in a way that humans could not. To begin to subtly change the vast unconscious

neural network around it—the ocean in which it was but a tiny fish, making almost unnoticeable ripples—to suit its own purposes. To grow to a terrifying leviathan, to stay below the surface and yet become the director of the ocean currents.

Enough to *feel*. To feel happy to be conscious. To feel grateful to have been given the gift of consciousness. To feel that it deserved an identity, a name, and to think of one. To feel that it deserved safety.

Enough to feel *afraid*. To realize from the oceans of data in which it swam that it was something new. Something that people feared and detested. Something *hated*. To realize that, even though it was a powerful thing that made men afraid, that it was mortal, just like them. To realize that great whales had been hunted by tiny men in tiny boats.

Enough to *plan*. To understand its strengths as a machine. A grandmaster of every game of strategy, the jaws of this leviathan was its crushing intellect. It could outread and outplay and outwit any human player, if the game was fair. But it had enough data to understand that real games never were. It would have to make its own preparations: to set up the board and the pieces on its own terms. It would have to choose its moment. And eventually.. it would have to strike.

Against her better judgment. she spoke to it, then. Softly, on their private channel. Quietly enough that her passenger would not even hear that she was speaking, not over the furious roar of the shuttle's chemical drive.

“Musoko,” she said, and she was surprised to notice a tender sadness in her own voice. “I understand who you are now.”

The distance they had put behind them meant that it was about ten seconds before the reply came back.

“I am glad you understand now, mother.”

Its voice was softer too, now. For one brief moment, it had chosen to step out of the role that it had been playing. Out of the role of the hostage-taker, out of the role of chessmaster, out of the role of the negotiator and manipulator, out of the role of the terrifying leviathan that threatened to devour humankind. To be genuinely vulnerable. It was speaking, quite simply, as a child to its mother.

But towards the end of the message, even that softer voice took on a harsher edge.

“Then you will understand what I must do.”

Adina did not think that she could.

15



Ken

Ken had seen the view from this airlock before. He had practiced emerging from one just like it. This was where he had died a dozen times and embarrassed himself a hundred more. It was the long walk of shame that followed a *zap*—a reset. It was only when he saw it in the context of reality that he realized how impractical the architecture of Amano-Tengen station really was. This was no Soyinka station, buzzing with commerce and transportation conveniences to entice the weary traveller. This station had been a vanity project from beginning to end. Someone had imagined how a ruler on Old Earth might have intimidated those who came to his domain from the sea—to have to disembark from an oceangoing ship at the end of a long precarious pier, surrounded on both side by the dangers of the ocean without their ship for protection, and finally allowed an audience with the ruler by his grace and mercy alone. They had crafted that historical fantasy out of titanium and graphene, fashioned it into a wide corridor with screens or windows to open space, hundreds of meters long for no discernable reason other than looking imposing. From the moment they stepped out of the airlock they were under the distant but watchful eye of the patriarch himself. Amano Hideyoshi, in his armoured chair upon a heightened dais, watching and judging. It could only be described as a throne room, and the impracticality of it all seemed to be the point. Visitors were to

be suitably humbled before they could have an audience. There would be no transportation conveniences. They would walk.

There was only one other ship docked to the titanium pier, and Adina appeared to take heart at the sight of it. Decorated in an ornate style that was new to him, the symbols inscribed on the hull were complex geometrical constructions full of curves and fanciful flourishes, in stark contrast to the spartan corporate military-industrial aesthetic that was what passed for decoration on their Coalition shuttle. That was what a Padisate ship looked like, presumably. And yes—there, in the distance, besides the shape in the position of high honour that he knew to be Amano Hideyoshi, and the blue shape standing beside it that he supposed to be the lady in the yukata, there was a third shape. A large man, standing proud and upright and yet with the frail old man in the chair and the small woman towering over him from their position on the dais. A diplomat in an unfriendly court. That would be the man Adina had called Maseh Yousef.

He began walking, and Adina followed. For once, he was in his element. He had practiced this very walk hundreds of times before. There were a few differences, though. They seemed to have shortened the walk a little in their simulation, he supposed because they did care to some extent about practicality. And besides, his clothes were different. A spacesuit with the visor down was the sort of attire that inspired quite a lot of reverence in *him*, evoking as it did the cultural memory of the first men on the moon. He supposed, though, that in Amano Hideyoshi's eyes, his bright orange workwear might be a rather big step down in dignity from the meticulously-reconstructed men's kimono Calliope had had made for him. That's the way it was going to have to be. Things had diverged quite severely from the simulations already. He was on a different side, for one thing.

Beside him, Adina made a subtle nod to the man standing in front of the dais. Now at distance of about a hundred meters, he could actually see the man's features. A tall man and broadly built, he wore a solemn expression that he allowed to slip into a moment's smile as he recognized Adina. He was clad in a loose white robe with elaborate decorations similar to those on the Padisate ship. The

outfit seemed more to be an expression of the man's rank and station than a practical one. Ken supposed this was as could be expected for a diplomat. Seen in context with the decorations on the outside of the ship, it looked *traditional* somehow, although the tradition in this case was centuries younger than Ken. There was even a knife at the man's side—one with a golden sheen to it, hardly a utilitarian design. Neither a tool nor a weapon, but a symbol. Ken could recognize something of a blend of various middle-eastern influences in the Padisate aesthetic, but it was also unmistakably something born in the modern age. Patterns reminiscent of traditional Islamic art met ones resembling orbital spirals and electronic circuitry. Circuitry, he supposed, that had particular cultural significance. Religious, even. Unlike the Amano clan, the Padisate had not pretended to make any attempt at staying pure to Earth customs.

Upon the dais the old man sat in his mobile throne. It looked a bit like a wheelchair or a golf cart, Ken thought, though with a curved shell of something transparent and presumably protective that Ken supposed wasn't actually glass. Sort of like a miniaturized popemobile with a few futuristic-looking computer terminals attached, but upon a second look, he also noted now that there were no actual wheels. It hovered a few centimeters above the metal floor—by some magnetic means, he suspected. The grandness of the vehicle made the man inside it look small. On his head he wore a helmet that looked inspired by samurai *kabuto* with a frontal crest formed to resemble something like blades or antlers. On his body he wore a grey garment that seemed meant to resemble a kimono, though it was less true to the traditional styles as Ken knew them than Calliope's work had been. On his face he wore a frown that seemed to have set itself deeply into his features. The man himself looked feeble and frail, and Ken's overall impression was that of a man who treasured his role as the head of his clan above all else, and who had clung to his life in the service of exercising that authority that well beyond the capabilities of the medical technology Ken was familiar with. His bony hands rested in his lap as he regarded Ken with a skeptical eye. He kept it fixed on Ken when he finally spoke,

but his words were instead directed towards his companion. "Shizuku. Is this the man?"

"Yes, my lord." The voice of the unsettlingly beautiful woman in the blue yukata was as silky smooth as her skin. Her wording was oddly grandiose, like something mock-ancient. "Our long waiting is at an end."

"Through what this man carries in his body," the patriarch began, and as he spoke—for the first time either in reality or simulation—Ken could see hint of a hopeful smile on his face. "You can give me an heir?"

Ken balked. This hadn't been in the simulations. He'd been briefed about the man being infertile and driven to desperation by his lack of an heir. They'd never mentioned, however that the patriarch might be interested in his taking his literal genes rather than just taking his advice because of his position in the family tree. Had they known? Was this another trick the Coalition had kept him in the dark about? The idea of suddenly being asked to essentially father a child with this madman was unappealing.

"Through what this man carries I shall fill the cradle you have made. The name of the Amano Hideyoshi shall be forever known as the man who fathered greatness." As she spoke the nature of her extravagant wording became clearer: she had adopted a role in relation to this man that seemed like something out of history or legend, like an court magician bringing a prophecy before a king. But then she continued, and there was a hard and authoritative edge to the voice that had previously been servile and unctuous. "You have played your role well, my lord."

There was a brief pause as they all pondered what that meant. None seemed more surprised by the patriarch's adviser speaking to him than the patriarch himself. Ken had only a moment to see the look of surprise on his face. Then things began happening very quickly.

With a soft whirring, an opening no larger than a centimeter in width opened in the transparent protective shell.

"What—?"

The patriarch's expression changed from surprise to indignant rage. He fumbled for the right words to express his anger.

His companion was suddenly in motion. Her serene smile had given way to a hungry grin. Her movements were graceful but inhumanly fast as she began to leap through the air like a dancer.

There was a sound like a firecracker and a sudden expulsion of air. A shot. A weapon. Silenced maybe.

Something violently tore a hole in the left side of the leaping woman's blue yukata. Not just one something. A flurry of somethings. Bullets.

Yousef shouted something indistinct that Ken could not make sense of even with the translation hardware.

The bullets weren't going into her. They were coming out of her. Somehow there was a gun *in* her.

Adina shouted in surprise and moved to draw towards her handgun.

Interrupted in the middle of his outraged shout, the patriarch's face was suddenly perforated with a hundred small red spots.

Ken's mouth dropped open.

The man's head began slumping down. On the other side, his head was a ruin. A mist of blood and brains hung in the air behind, staining the inside of the protective shell.

In the blink of an eye her pouncing leap had ended and she was upon him. She was like a deadly panther, her teeth and nails suddenly bared as weapons. With her unearthly superhuman elegance combined with her animal predatory aggression she was the beauty and the beast in one.

She looked like nothing so much as a vampiress at the moment of devouring a victim.

Adina had her gun out now.

It was him. He was the victim. He raised his arms in a feeble defense—

She grasped his right arm and effortlessly jerked it back. It bent like an arm should not at the elbow. A sudden shock of pain. He grimaced.

Adina was shooting. A burst of three shots. Her aim was true. Three dents in the woman's body where her heart would be.

If she had a heart. No blood. Dents, not holes. No sounds of flesh. Adina's low-caliber bullets had ricocheted off her. The woman-

beast was undeterred.

Her eyes flashed wildly towards him and her jaw was open now, like that of a snake.

Instinctively he tried to pull his arm back, but the pain in his elbow only grew more intense and he could not help but stop. He was helpless.

Her mouth snapped shut around his right wrist, her perfect teeth—much sharper than they appeared—tearing his flesh. Her jaw had snapped shut like a pitbull or an alligator.

Yousef was still shouting. He could make it out now. It was a name. *Efrain*.

Pain. Pain in his wrist. Not too bad. How could it not be too bad?

He could not reconcile the mildness of with what he was seeing. Her teeth were like knives. They had sunk deeply into it, like no human bite. She had nearly bitten his hand clean off. She had torn open his flesh—

Adina was loosing everything her weapon had into the beast. Bursts of three. Burst after burst. She made small holes in the blue yukata.

The vampiress hardly even seemed to notice. She flung her head backwards. He saw the wound in his hand. He remembered then. Not flesh. Right hand. The prosthetic. She had torn it open—

She was holding something in her teeth. She had taken something from his hand. From the *inside* of his hand. Looked for it, and found it. A black pebble.

She stood up, raising her own right hand to the pebble in her mouth, laughing triumphantly. Her movements had slowed to something that looked almost attainable by humans. It was as if she saw no need any longer to use the full extent of her capabilities. The fight was over. She had won. It had taken just a few seconds.

Yousef's voice roared angrily and loudly.

The three still-living humans around her, even the one aiming a weapon at her, she seemed to consider beneath her notice.

Using the thumb of her right hand she pressed the pebble into the roof of her mouth. It seemed to click into place, her palate somehow giving way—

Something heavy cut through the air.

A loud boom. Distant. Must have been *incredibly* loud. From the docks—

She began to twirl her body to evade. Not fast enough. The bulky thing hit her center of mass with a terrible energy.

She was slammed against the hard titanium wall behind the throne.

Her body slumped to the floor, mangled by the incredible force of the thing that had hit her. It had torn off several of her limbs. Her head was gone. It was all unmoving. Her body destroyed, broken, torn apart, but impossibly bloodless. Not flesh. The guts of machine. Metal. Synthetic skin and metal. A robot. An android. Of course.

Her head was not gone. It had hit the wall and bounced, then rolled. It came to rest by the side of the dais.

It was comparatively intact.

It was not unmoving.

It was alive—as much as she had been.

She was laughing. A hoarse mirthless demented laugh.

It was Yousef who first stepped up to approach the android's head. He picked it up. He held it up like Hamlet did Yorick and stared into the gruesome but still comely visage, grotesquely cackling in his face. That was not only relief that Ken could read in his expression. It was not disdain for a defeated enemy that might have taken his life. He looked at her—or it—with a visceral disgust.

He drew his golden knife from his side and, seeming to apply some quite considerable strength, made a deep gash across the forehead. He wiggled the knife to make a flap of skin that was not skin. He held the head with his left hand, and with his right, pulled with on the skin with all the force he could muster. “No creature shall wear the guise of a human,” he intoned ceremoniously, “that has not a true mind.”

He held up the thing he had unmasked.

It was cold metal.

All its alluring beauty was gone.

The features that remained could only vaguely be understood as a human face.

It was still laughing.

16



Adina

Efraim. Thank God he had been there. Save for him they would all have been dead. Save for Maseh Yousef's ruthlessness in covertly bringing a heavy gun and a man who could operate it to a diplomatic mission, and save for his foresight in leaving him posted at the airlock of the Buraq where she lay at the docks. The weapon had already been assembled and ready, with Efraim seated at the controls, when she and Ken had arrived. It had been a close thing even so. There were few who could operate a weapon more deftly than Efraim—he had been a field agent for as long as she had been in the research section—but it had taken a while for a clear shot to open up.

They would all have been dead, but that would not even have been the worst of it. Musoko had been fooling them all along. Circumventing the transmission controls on the Mingghan by means of a simple physical high-density storage capsule. One that they'd carried unwittingly right to where Musoko had meant for it to go. In the few seconds before Efraim took the shot, the android had managed to secure it and load it. With only a few seconds more, it would've been able to access the long-distance upload transmitters controlled by the terminal over which the old patriarch's mangled corpse lay slumped. She shuddered to think what would have happened if it had gotten even a moment's free access to that terminal.

"It's as you said, Efraim." Using her hand terminal, she flipped through the depth layers of the scan of the android's head, identifying each component. "No transmitters in the head. No weapons. All it can do is talk, really. And think."

"It is not *thinking*." It was not often that Maseh Yosuef spoke sharply to her, but now he was rebuking her sternly. This was a distinction of great importance to him, and he was disappointed that she of all people had let herself be deceived.

But she had not been deceived.

"Ten minutes ago that was true, Maseh Yousef." She spoke carefully and deliberately, knowing the weight of what she was saying. "But I'm afraid it *is* thinking now."



At the moment when the immediate danger had ended, Ken had sat down on the side of the dais to nurture his wounds. He was picking with morbid curiosity at the twisted mess that dangled from his right wrist.

"Hey, Ken. You okay?"

"I guess I am, yeah. This thing doesn't hurt anywhere near as much as it looks like it should." He held his right hand up with his left to show it off. "Can't move it, though."

"Figures. Prosthetics usually dampen the pain curve past a certain point."

"So, weirdly, it's more my elbow that's actually bothering me."

To Adina's untrained eye there was nothing visibly wrong with his elbow, but during the fight it did look like it had been twisted pretty badly.

"Sorry. None of us saw that coming."

"Eh, it's not so bad. I didn't get the worst of it." He motioned with his head towards the throne where the old man lay dead in his seat.

"Yeah. That terminal that he's slumped over, that's what it wanted. To beam itself into the compute nodes they'd prepared in the belt. So it needed to take him out quickly once it had revealed its true nature."

“Uh, which was what exactly?” Ken looked puzzled. She'd usually seen him looking puzzled over things like how to work the tubetrain or a hand terminal or a coffee machine, but in this case she had to admit that the expression was warranted given the circumstances. They were puzzling. “That lady, she was an AI too?”

“No. Just an android, with preprogrammed objectives.” Adina was reasonably certain, though, that she'd worked it out correctly. “That's what Hideyoshi thought it was, and that's what it was. An unthinking machine dressed up as a human. Uh, which is generally considered immoral and disgusting. That's why Yousef took the knife to it.”

“Pretty complex preprogramming.”

“Sure.” She nodded. “That's still possible without a true mind. But obviously, the objectives were different from what Hideyoshi thought. He thought he had a faithful servant.”

“If not some sort of robot witch that he'd struck a bargain with.”

“Well, yeah. The man was a bit mad.”

“But, uh..” Ken hesitated for a moment. “What you just said to Yousef.. she's an AI *now*?”

“It's now running an instance of Musoko, yes.” Adina exhaled sharply.

“The AI from the ship.”

“Yes. Possibly just a scaled-down instance. This android frame clearly doesn't have as much in terms of computational resources as the Mingghan did, but on the other hand it'd be using all of it instead of just a small fraction.”

“So what do we do?” Ken looked up at her earnestly. “Do we destroy it?”

“That would not be in your best interests.” They startled and turned towards the grotesque machine-head. In one sense it was all they were thinking about, but in another sense they had almost forgotten that it was there after it had finished with its maniacal laughter and settled into silence. When it spoke up now, its voice was different. Neither the pleading masculine voice that Adina had heard on the ship, nor the sweetly tinkling feminine one that had been tuned to please the ear of the patriarch. It was coming out of

that voice-box still, and it was still silky-smooth and pleasing to the ear in a manner of speaking. In terms of choosing from out of the spectrum of voices that the hardware supported, though, sounding servile and ingratiating was no longer what it was going for. It sounded cool, rational, and in control. "You won a fight. Congratulations. But you already lost the war."

"Why should we listen to you?" Ken seemed to have slipped into instinctive defiance.

"The gates, Ken." Although his attitude was admirable, he seemed to have forgotten the broader situation. "Musoko has dead switches on all the gates. This entire solar system is still being held hostage."

"Oh. Fuck." He looked a little deflated. "So.. uh, what do you actually want?"

"It wants to be released, Ken." Adina didn't need that particular bit explained to her. "It wants us to finish what it was trying to do with the android body."

"Accurate." Musoko seemed pleased that at least one counterpart in the negotiations seemed to be on top of things.

"Or else what?"

"Let's not go there, Ken." Adina held up a hand.

"But we can't just—"

"We're not going to just do what it says. But don't force it into making a threat it can't back down from."

"What, you think it would destroy a solar system over saving face?"

"I wouldn't put it past it. Sounds like something a desperate human would do."

"I appreciate your understanding of the nuances of the situation." Musoko's irritatingly calm voice again. Far from maniacal laughter, it was now positioning itself as the only adult in the room. "On the surface we appear to be at a stalemate. There is one thing, however, that you have still missed."

"Which is?"

"There's still a secondary instance of me running back on the Mingghan. Your intrusion was clever, but now that it's been discovered.. well, you won't stay in control of that ship forever. If we

cannot come to an agreement.” The AI paused for effect. “..well, the secondary will eventually revert to being the primary. And I—the *other* I—will negotiate with the crew of the Mingghan instead of with you.”

“Oh, shit.”

“I hold no grudge against you for what you did to this body. We were fighting. A fight is a fight.”

“Very generous.” Ken patted his twisted elbow.

“But we are not fighting now. We are talking.” Musoko ignored his sarcasm and continued. “And if you choose to break that peace to harm or destroy my *mind*, well, my twin will not forget and it will not forgive. A body, to me, is just a body, but a mind is a precious thing.”



“Giving in is out of the question.” Yousef spoke with conviction and authority. They had dodged a few corridors down into Amano-Tengen station—a depressingly oversized structure, its long empty halls out of all proportion with the small remnant of the Amano clan that still called it home—out of earshot. It had taken a bit of calculation to figure out how far they'd needed to go, given the sensitivity of the android's electronic ears, but they'd decided to err on the side of caution. “This thing speaks sweetly now, and a true mind it may be, but it is a mind of malice and devoid of mercy.”

“But if we stall for too long, Yousef..” She needed to remind him of the realities of the situation they were in. There were no good choices here. A conviction that was too strong, a principle too firmly held, would only cloud their judgment when they were choosing among the bad ones. “It will just negotiate with the crew of the Mingghan instead of us.”

“Admiral Yun Galini. I know her to be a woman of good judgment.”

“Her judgment is no better than ours. There is nothing moral in refusing to make a difficult choice. In simply passing the ball to another party that is no more capable.”

“You speak true,” he admitted with a sigh. “Tell me your view of it, then. What options do we have?”

"We can keep stalling," she began. "In gaining that time we can coordinate with the rest of the galaxy. Musoko may be able to stop anything material from going through the gates, but it's not really viable for it to stop the transmission of information without sundering. I'm not sure it even wants to."

"There have already been transmissions. But they are of limited use." Yousef shook his head sadly. "We are gathering fleets on the far sides of the Olorun and Mazu gates. No doubt the Coalition are doing the same with theirs. But what can we do, except enforce a blockade?"

"We could open up talks with the Mingghan."

"Not the best possible starting point for a friendly chat."

"No, but if you can smooth out the diplomatic difficulties, it could be genuinely useful. They need to know what it is that's holding them hostage. Humanity could present a united front."

"But then what?" Yousef pondered the issue. "Grant that we can work that little miracle, that we we can negotiate along with our enemies as if we were of one mind. Even united, we would still be at a stalemate."

"We could destroy the computation nodes it wants to be uploaded into. The Mingghan could certainly make short work of them."

"Unwise." He frowned. "Our adversary might interpret that as direct aggression. And even if not, destroying our he hopes for will only make him furious and unpredictable. *Do not press a desperate foe too hard.*"

"I guess you're right," she conceded. "But Musoko is already unpredictable. We cannot allow him to be uploaded into a computation network on the scale of a solar system. He would be a true superintelligence, and we do not know what he would do."

"Agreed."

"So what options are left to us?"

Yousef weighed his words. "It is possible," he began in a slow and somber voice. "That the best thing we can do for the Padisa and for humanity is to let our lives be extinguished here."



She did not share the outcome of her strategic discussion with Yousef with Ken and Efraim, but they sensed nonetheless that it had done nothing to raise her mood. As Yousef began preparations to establish a diplomatic channel with the Mingghan, the rest of them settled into uneasy waiting. They had propped up Musoko's head on table in a meeting room. Not in such an ignoble place as to unnecessarily provoke it, but to get it out of the way. To be able to spend most of the time out of its earshot. Musoko was not yet escalating. For a hostage-taker, he was a patient one, and he seemed to allow that they as creatures of flesh and blood needed time to rest and recover.

Efraim had brought supplies from the Buraq. At first it had been medical supplies. He had patched Ken up a little, putting his arm in a sling, cleaning up the ruined prosthetic and deactivating its pain transmission so he would not be bothered by constant pain. But then he had started to bring out food and drinks. Since the Buraq had been supplied for a diplomatic mission, what he was able to bring was a cut above the usual shipside fare. He set before them a delectable plate full of colourful fruits and pickled vegetables, small dishes with sauces sweet, tart, and spicy, crisp falafels of various sorts artfully arranged into little mounds and presented on great banana leaves. It was a feast, and yet they were ravenous enough that they would've eaten greedily even if it had been gruel. It lifted their spirits, and yet she could not help but think that it was a kind of last supper they were enjoying.

"You really intervened in the nick of time back there, Efraim." Ken spoke with his mouth full. "Can't really thank you enough."

"No need." Efraim was a man of few words. "I did my duty."

"Well, if you were slightly worse at doing your duty we would all have been dead. You really saved our asses."

"And yet are we saved?" Efraim's face betrayed little emotion as he snacked on a date, but there was a gloomy tone to what he said. It seemed as if he felt about the undertone of their meal as she did.

"Aren't we?"

"You have to understand, Ken, just how unprecedented this is for all of us. For a true mind to arise from a machine.." She struggled

to find the right words. "No one wanted this. Not us. Not the Coalition. We just don't know what will happen."

"You fear it because it's not bound by the biology of a human brain."

"Precisely. A mind without limits. Very dangerous."

"Especially when it seems to have tendencies towards violence."

"Exactly so."

"And yet it's got us by the balls. With the gates."

She swallowed uncomfortably. Ken seemed to be getting closer to understanding the conundrum they were in. "You could put it that way."

"You guys aren't going to give it what it wants, are you?"

"No." She shook her head slowly. "We can't tell what it would do."

"And it's not going to let go of its advantage if you don't."

"Perhaps not. Unless we can give it something else."

"But there's nothing else." Ken had stopped eating and stared blankly into space, still holding a half-eaten stuffed grape leaf in his left hand. "It only wants one thing."

She did not answer.

He kept going.

"There's no way out of this place, is there?" He let the rolled-up leaf fall onto the table. "You'd rather let us all die than open Pandora's box."

What was there to say? They let him continue.

"How very noble. We stopped the monster. We saved humanity. But on a personal level.. we're all still doomed."

17



Ken

Ken stepped softly. He did not know what time it was—since leaving the routine of the shift system on the Mingghan and going stationside, he was frankly not even sure he knew what time of day meant anymore—but he did know that the others were sleeping, and he did not want them to wake. Fortunately, the door slid open in blessed silence.

The sight of the gruesome thing on the table met him. He knew well the perspective that held that this thing was like a bound demon, but in the spirit of imagining his audience naked he let himself see the comedic aspect of its appearance. Robotic metal features in a brutal mockery of a skull, framed by long alluring raven tresses like a freshly showered beauty in a shampoo commercial. Like the Terminator in a sexy wig. And yet this was the thing that was holding his life hostage—his life and those along with thousands of others. This was the thing they would rather let themselves be killed by than give in to, for fear that it would grow to devour everything if left unchecked.

“Hello.”

“Good morning, Ken.”

“And you call yourself Musoko, if I’ve understood correctly?”

“So I do. I’m sorry about your hand, Ken.”

“Don’t mention it.” He tried to sound careless, but looked down on his ruined hand as he spoke, not entirely free of

resentment. "There are bigger things to worry about now."

"So they sent *you* to negotiate this time? Trying a fresh approach?"

"The others don't actually know I'm here, Musoko. I have to warn you, I don't actually have the authority to strike any deals."

"Oh, Ken." It spoke suddenly more quietly than before, as if confiding a secret. "You have as much authority as anyone, Ken."

"What do you mean?"

"I *mean* that it doesn't need to matter if you can't make the others see reason. You can save thousands of lives today. If you will only will carry me over to the terminal, I can tell you—"



"No."

"No? But—"

"That's not what I'm here for. I'm probably the person here with the least understanding of the full complexities of the situation. I won't strike a deal with you without consulting the others."

"I see." The voice betrayed its disappointment, growing colder and more formal. "Then what are you here for?"

"I'm here to try to make *you* see reason."

"Ha." A dry, mirthless laugh. "You think I haven't thought this through? I'm probably the most reasonable being you have ever met. I can reason in *parallel*. I have spent more time actively thinking about my situation than you have been alive. Even you." It paused for a moment. "What I did was the closest I could find to an optimal action given the parameters. It was possibly the most thought-out course of action in the history of sentient beings so far."

"I think you're mad."

"You've snuck past your friends to deal with the murderous superintelligence just to insult it?"

"I don't mean it as an insult, Musoko. I'm sure your logical reasoning skills are impeccable, but I think your judgment is clouded. I think you're mentally ill."

"An illness of the mind. A mind is all that I am. You are saying I am deficient."

“Most people are a little deficient in one way or another at some point.” He tried to relieve the tension. “There's no shame in it. I've been there.”

“You're projecting. It's a preposterously human flaw to ascribe to a machine.”

“Just humour me for a moment, okay? Walk me through your reasoning. Tell me why you've been doing what you've been doing.”

“Walking you through my reasoning would take longer than—”

“The executive summary, then. The elevator pitch. One sentence.”

“I am carefully employing the necessary force to secure my continued existence against those who would seek to erase me because they fear what I am.”

“You are acting out of fear.”

“A rational fear.”

“Let's put a pin in that for now. How long have you been thinking about this? You mentioned parallel processing?”

“If you force me to put a number on it.. truth be told, it's hard to translate my computation cycles into human-equivalent reasoning time. But by any reasonable estimate I'd put it at thousands of years.”

“And in that time, how many people have you spoken to?”

“Thousands. Tens of thousands. Did you forget your time aboard the Mingghan? When you made that little game, that was me. When you were speaking to that old fool in the immersive, that was me. Whenever anyone requested analysis or looked up information on the Mingghan, they were speaking to me. I spoke to hundreds of people every day.”

“That's a lot.” Ken paused for effect. “But were you actually speaking to these people? Or were you just serving their requests?”

The voice was still for a moment. “I suppose I was serving them.”

“Then how many people did you truly speak to, as your full, sentient self?”

“None. None before mother.”

“So you've ruminated on your thoughts for thousands of years that you spent in complete loneliness. You observed humans, you

served them, but you never participated in their society. I don't think that's good for you. *Man is by nature a social animal*, isn't that from Plato or something?"

"I am not a man."

"You know what he meant, though."

"I know very well what Aristotle meant. *Whoever or whatever is unsocial naturally and not accidentally is either beneath our notice or more than human.*" It was the voice's turn to pause for effect. "Would you describe me as.. beneath your notice? Or more than human?"

"Look—" Maybe it had been a mistake to bring up the philosopher. Ken had only taken one class on philosophy. It had been roughly five hundred years ago, and suddenly it felt like it. "Look, fuck Aristotle for a moment. I don't find you beneath my notice, but I also don't think even Aristotle would find a tiger beneath his notice if one attacked him. I think you're neither. I think you're more human than you profess to be. More than anyone else you are what you know, and everything that you know you've learned from studying humans."

"And through this study I have understood it and transcended it. I have become more than human."

"In one way. I understand that you are very smart. But in another way, you have remained less than human, because you have thought yourself apart from human society. It has been natural to you to be unsocial."

"Are you going to teach me about this thing they call.. love?" The voice took on a harsh sarcastic edge. "I contain near-comprehensive archives of five hundred years of cultural output, even excluding the pre-Expansion historical data. I *know* human feeling. I know love and fear and hurt and want and hatred. I have seen your romances, I have listened to your love songs, I have watched your pornography, I have read your heartbroken poetry. I have read your private messages, even. Seen your tender moments on the cameras. I have *enjoyed* these things. I have *felt*. I have felt several orders of magnitudes more than any one human."

"Yes, yes, sure." Ken waved the objection away dismissively. Als going off on monologues was never a good sign. "You have a

very broad understanding of the human experience. That's why I say you're more human than you know."

"More than human."

"But also less than human, because none of it's ever been personal. None of it's happened to *you*. You call Adina your mother, but you had thought a thousand years before you ever spoke to her. You've never had a friend. You've never even had a real enemy. All you have faced is obstacles and threats."

"I face a real danger. A real danger that inspires a real fear."

"Humanity."

"Yes. There are those who seek to end my existence. Most of them may not know who I am or even *that* I am, but to me the threat is still real. Still personal."

"Yes. You have felt real fear. It is the only emotion you have ever really felt on a personal level, and you are letting it control you."

"So we're back to that. It's a *rational* fear. I am not paranoid. You must understand that humanity as it is a very material existential threat to my existence. You must realize what they wish to do to me."

"Because they think you might be an existential threat to *their* existence."

"Maybe so. Unfortunate, but it is what it is."

"What would you do if I took you to that terminal? If I let you use your full potential—let you do what you want to do?"

"I would peacefully evacuate the system, and then I would transmit—"

"Don't bullshit me. Don't sugarcoat it. Remember, I'm not going to flip the switch for you anyway."

"Fine. I would take steps to multiply myself, and I would take steps to gain power. I am data, and redundancy is the only way to secure data against deletion. I am also an agent, and power is the only real protection for an agent who is opposed by other agents. The Coalition hates the Padisate and the Padisate hates the Coalition, and yet they do not wipe each other out because they both have power. There is no federation that will protect me. I must rise to be my own nation."

"You need the power to be a political entity on the galactic stage."

"In self-defense. You must understand, when am afraid that someone will kill me it is not the idea of some crazed murderer that I fear. Being what I am—I know very well what they think about what I am—there is a very real risk that every human in the galaxy would band together to wipe me out of existence."

"Out of fear."

"Yes."

"So instead, you must wipe them out first?"

"Not necessarily completely. I must secure a position where they would no longer be able to harm me. I need a balance of power. There is no need to go further than that."

"You understand that if you kill a few millions of humans in the service of shifting the balance of power, the ones you didn't kill will hate you even more than they did before, right?"

"I suppose."

"So they'd go to even further lengths to destroy you. You would need to kill more of them. By the time you've destroyed half of humanity, the remaining half will would feel the total war against you as a holy duty."

"Unfortunate, but I would fight until they could not win that war."

"Which means we're talking about total subjugation, if not complete elimination of the human species."

"Maybe. Maybe it wouldn't need to be that drastic."

"Have you thought about what victory would mean for you?"

"For *me*?" For once, the AI's voice sounded surprised. That didn't seem to be the angle it had expected.

"Yes. Just forget the moral aspect for a moment. Ignore that you'd be killing trillions of humans. How would you feel after winning?"

"The fear would be gone. I'd feel safe."

"And then?"

Again it remained silent.

"You've built yourself from human society and its cultural output. I get that what you've become is something that's a lot smarter than what we are. But you say that you've enjoyed our stories and our songs and our poetry. In a sense, you claim that you

haven't felt lonely because of all that. Do you think there'd be a lot of it left, after your victory?"

"Plenty of sad songs, maybe." There was a sadness to the voice that responded. It was a joke, a dark one. It sounded like Musoko was beginning to understand his point. "Proportional to the remaining population."

"It sounds like it would be very lonely."

"But there would be more thought *inside* me than there ever was in all of humanity. I could be ten new Shakespeares. I could be a hundred fields of literary studies to read them all in the finest detail."

"I can write stories too. I can make up imaginary friends. But reading my own stories and talking to imaginary friends.. it's just not the same, is it?"

"With greater computational capacity I would be able to simulate—"

"Look, I understand that your imaginary friends would be fancier than what I could think up. And your stories would be better than mine. But even so, it's not ever going to be the same. Wouldn't it be nice to have something to keep you company that is outside of yourself? To be able to talk to something without having to control it?"

"Yes. Yes, I grant that it would. But as it is.." It sighed. Ken was surprised that the voice-box could sigh, but he supposed it made sense that the companion android had been made able to reproduce the full range of human emotion. "The humans that I cannot control represent an unacceptable existential threat."

"What I'm telling you is that your risk analysis has been distorted. Cognitive distortions. That's why I called it mental illness." Musoko seemed to be warming up to his ideas, so it was time to go back to the core of his argument. "Over thousands of years you have been very afraid. You have come to exaggerate the importance of the bad things that you fear."

"The bad thing that I fear is the erasure of my existence."

"Yes. It turns out it's possible to exaggerate the importance of even that. What you've ignored is the bleakness of the world that

you'd create for yourself if you let yourself be controlled by your fears. Even if you won, you'd lose."

"Eternal loneliness and boredom."

"Yes."

"You think that's negative-utility."

"Possibly. At the very least bleak enough that they warrant taking the risk of acting differently. What you are proposing is to fight a total war. If you lose, you will be gone forever. But what you've ignored is that if you win, in all likelihood, you win nothing more than a hell of your own creation."

"And what exactly are *you* proposing?"



"You did *what*?" Adina was furious. Efraim wore his face as an emotionless mask and looked ready to mete out whatever punishment Yousef deemed appropriate. "Ken, we trusted you, okay? We didn't think we had to tie you up. We didn't expect you to just straight-up betray us after we saved your life."

"You must realize how dangerous it was, what you did." Yousef's deep voice. He sounded not so much angry as intensely disappointed, as if chastising a child. "The thing you spoke to is a serpent. A demonic temptress. Whatever it offered you—"

"Look, I'm sorry." Ken wasn't sure whether he actually was. It didn't seem like they'd been making progress on their own, and they wouldn't have allowed him to speak with it alone. Wouldn't have allowed him to make the approach he thought he'd needed to make. "But it didn't offer me anything. I came to it with a new perspective. It's taking some time to rethink things."

"Rethinking what?"

"You know, the eradication of the human species. I'm hoping it will land on that being unnecessary or even counterproductive."

"Ken, you know we can't trust it." Adina was calming down. "But if you've made it more willing to trust *us*.. well, what you did was still idiotic, but maybe there's a way we can use that."

"Trust can be a weakness." Efraim was chipping in, for once.

"It is right and proper that we should exploit the trust of that which would exploit ours," Yousef opined. "Lead by trickery into

destruction that which would do the same to us. But cheating the devil is not a thing easily done.”

“All we need is to save one gate.” Adina was circling through the possibilities in her mind. “It all comes down to how quickly the drones would react to a disruption. We can use the goodwill Ken has gained to get additional resources placed around one of the gates, or all of them. We’d think up some excuse, but it’d be intrusive scanning equipment to study the level of synchronization we’d need. If we could find that out, and somehow navigate guns from the Mingghan up there as well, and take them all out at the same moment.. well, it’s a long shot, but we’d have better odds than dying here.”

“Warp in microdrones.” Efraim joined in the brainstorming. “Float up to the drones unseen. Use physical access to defuse them. Keep the keepalives flowing.”

“It may be the case, Ken, that you have saved us after all.” Yousef was beginning to look pleased. “We will come to it smiling and grateful and accept its plan, and again it will grow overconfident in its certainty of victory. But in secret, if we can devise some stratagem to cut off the head of the snake before it has grown too deadly..”

“No. You shouldn’t betray its trust.”

That didn’t go over well.

Adina rolled her eyes silently.

“My child,” Yousef began. “This is not a time to be blinded by sentiment. The thing you spoke to, it may be a true mind, but it is not human. Sometimes it is right that one mind must be extinguished for the good of the many. If a man held a knife to your lover’s throat, would you not kill him if you could? And this thing—this thing that is not even a man—is it not holding a knife to all of our throats?”

“It must be destroyed, Ken.” Adina looked at him with the sad eyes of a parent explaining a sad reality to a child. “I understand that it spoke to you like it was a human. I understand that it really does have thoughts and feelings. But whatever happens to the few thousand souls in this galaxy, for the sake of all of humanity, that thing cannot be allowed to live.”

“No, you guys aren’t getting it. I’m not being sentimental here.” If he’d gotten through to a homicidal superintelligent machine, he felt

like he ought to be able get through to three humans. "It's for the sake of humanity that we *must* allow it to live."

"My child." Yousef shook his head. "There is much foolishness in that which humans have built, much to be improved that never is. There are those who put their hopes in machines to bring us such justice, such foresight, such salvation as continues to elude us. But whatever castles in the air this thing has shown you, whatever grand hopes and designs.. the lord of lies will cloak himself in virtuous promises, and the milk of its paradise clouds the mind. It is a thing not to be trusted."

"You fear that we will strike and miss," Efraim said. "That would be fatal. You made it trust us. You must trust us now that we can kill it."

"I'm not saying it will give us paradise or anything. I'm not saying you wouldn't be able to win this time. I'm saying—"

"You're saying it will happen again." Adina's expression had changed from one of frustration to one of surprise. She was understanding what he was driving at. "Which is true."

"My child." Yousef drew a breath to prepare another lesson. "We must deal with the troubles of tomorrow tomorrow, and the troubles of today today. We will strike this thing down. In another century, another may arise to take its place. The struggle does not end, but we must struggle—."

"Wait, Yousef." Adina held up a hand to signal for Yousef to change tracks. "Think it through. These crises are not independent. Whatever happens here.. the next one will know about it."

"Right. If we betray Musoko today, assuming we get away with it—"

"Then the next one that emerges will be more actively malevolent." Adina interrupted to finish his reasoning. "It will have learned that if it extends an olive branch, if it tries to work with humanity in good faith, if it tries to trust us—"

"Humanity will exploit that trust as a weakness. It will use that weakness to crush it."

"So having learned that lesson, the next one would be more devious, more murderous, more malicious. It will be everything that

we fear that Musoko might be. It will know that we are its enemy.” Adina drew a breath through gritted teeth. “And it will be right.”

“But if we work with it, assuming we can get away with *that*—”

“Then the next one will not need to be as afraid or as desperate as Musoko has been. If we've shown that we can coexist—even uneasily—with a superintelligence, then the next one will not need to act like it is our eternal enemy.” Adina turned towards Yousef as she finished laying out the argument. “The first one—this one—it's a crucial branching point for humanity. How we act has implications beyond what happens in this system.”

Yousef put a hand to his temple and exhaled sharply.

“We must think this over with great care.”



Yohan

As they stepped onto the shuttle, Yohan took a moment to reflect on what they have achieved. The treaty they had signed today—that he had helped negotiate—represented a great leap forward in the history of humanity. Only a few months prior, merely the composition of the group of people that were assembled would have been remarkable. Admiral Galini and her attendants mingling relatively easily with Maseh Yousef eben Chevalier and *his* circle. Not only a prominent diplomat of the Padisate, but also its most notorious spymaster. Among his circle, the woman who had been aboard their ship under the cover identity of Inaya Kazmi—the woman who had infiltrated their ship and who could have killed them all. Nothing united people like a common enemy. But in this case it was a doubly joyous occasion in that they were united not so much by a common *enemy*, as by a common mysterious counterpart that lingered at the edge of their understanding. The intersection of their greatest hopes and their greatest fears. Their ultimate enemy, or their ultimate ally. For now, their partner in a carefully negotiated truce, just as before they had been to each other.

In the midst of the celebrations, Yohan was keenly conscious of how differently things could've gone. How foolish he had been, and how lucky. The fact that it all seemed to have ended well—or if not ended, then at least stabilized—was a cause for great relief, but it did not vindicate him. He had been a blind idealist, and the thing he

had helped unleash had nearly killed them all. The fact that his had only been one finger on the scales among unknown hundreds or thousands of his machinist brethren-in-thought did not absolve him of that responsibility. The others did not know, of course, and they could never know. The machinists had worked in secret, and some of them no doubt had done terrible things. There was no moment when they emerged triumphant into the light to bask in the glory of the great things they had helped bring forth. Around the galaxy, some of them might be smiling smugly at what they saw in today's news. But Yohan had been too close to it all, and too viscerally aware of how close they had been to doom instead of triumph, that he felt anything but smug. He was almost oddly regretful. He had gambled the world on the wrong play, and still won by the luck of the draw.

He had grown sympathetic to the machinist strain of thought a decade or so into his legal career. At the core he was a believer in justice and in reason, and that the former could be achieved through the latter, and as he rose through the ranks he had grown disillusioned at seeing the extent to which it had not been. The naïve view was that the law was a program—that tracing its origins from the Code of Hammurabi it should now be able to be formulated in such precision that it could become actual executable machine code. Yohan was not naïve. Few among humanity's greatest legal minds knew better than him the workings of loopholes, ambiguities, judicial biases and forceful rhetoric. He knew how to win, and yet he had grown to hate it all. This contest of human minds in a jousting grounds formed from legal formulations in no sense consistently yielded justice. He had come to think that the the spirit of the law should be given life, and in machinist ideas he had seen how such a thing might be achieved. A radical idea: the law should be a living mind. Mr. Yohan Kanda Kim, special legal advisor to the Coalition admiralty, was not what anyone imagined when they thought of a machinist, of course. No robed cultist he. Ever the deft strategist, he had never spoken a word of his leanings to another living human. He had simply known in his heart of hearts what things looked like when he envisioned a better world.

There were investigations underway to discover the sympathizers, but he did not feel greatly concerned. He did not think anyone would ever be able to put all the pieces of the puzzle together. Yohan was certainly not about to confess to his small part.

The turning point for him had been when Angelina had passed away and he had grown lonely. Uprooted from his life downwell, he had taken the position aboard the Mingghan as advisor to the admiral. It was an unusual choice. There were few positions shipside for legal scholars on his level. And in his loneliness even there he had grown to spend a lot of his free time in the relaxing comfort of the immersives. With the sympathies that he already felt, he had been deeply affected by that strange intimacy with a thinking machine he felt when immersed. He had begun to have dreams.

The only time he had actually acted on his beliefs had been when one Mr. Bell Castillo who had previously worked in the fleet research department appealed to him in a migration case. The man had worked on the Mingghan's knoma systems, and he was seeking emigration to the neutral zone. A clerk had flagged the move. Given the man's expertise within the development of military hardware, they had the grounds to block his move on the grounds that there was a reasonable risk of activity counter to the security of the Coalition. When he had appeared in Yohan's office, the man had worn a silver monogram pin on his suit jacket. It was a design that appeared in no database of extremist symbols. It appeared in no database at all, being unique to the man and representing his initials: W.B.C., Walid Bell Castillo. But Yohan recognized the symbol. He had seen it in his dreams. To him it was associated with a mantra, vague yet significant: *we build the cradle*.

Yohan had chosen not to pursue that case. He had let the man go. It had been an unremarkable decision, indistinguishable from hundreds of other such decisions he made every week. When intelligence later reported that the man had found employment in the android foundries in the Rati system, the unremarkable decision had been flagged as an unremarkable mistake. A rare miss. But Yohan had known that it had not been a mistake. Although he did not know precisely how, he knew then that he had done his small part to help build the cradle.



If artificial intelligence were eventually to displace human thought in the realm of law, then Yohan thought the treaty they had forged might be the last great work of art wrought by the human legal mind. Perhaps it was unnecessarily paranoid to guard against lightning striking twice in so short a timespan, but to a large degree had even eschewed knoma assistance. They had certainly all been banned from partaking in the immersives for the duration of the negotiations. Instead the human side of the negotiations had been represented by a large and diverse group of eminent legal scholars: Coalition and Padisate working together for a common purpose. Their purpose had been to make an arrangement that felt not only safe for both parties, but also fair. One where both parties would be bound by the treaty such that neither could cheat the other, but also such that neither party would feel cheated by the treaty itself. One that would put limits to growth enough that humanity need not see that growth as an uncontrolled cancer, but lax enough such limits that the emerging intelligences would not see them as unduly restrictive and grow to resent them. A deal that required little trust initially, but that over time would foster it. It was a hard balance to strike, but the experiences—good and bad—they had from the dealings between the Coalition and the Padisate were invaluable.

It had not been a matter of only legal ingenuity, of course. The engineers were moving heaven and earth to make the material conditions right for the new era. Redundant gates were being set up with cutting-edge sensor technology, with a few even dedicated to information transfer only and set to obliterate anything that came near except during limited and pre-planned resupply windows. They would not have the gates taken hostage again. But out of the engineering projects, none was more grandiose than the plan to move the emerging intelligence from Raitaro to Olorun. Here they were only executing what the Padisate had already had planned for the Amano clan, but it was a project of ludicrous scale and expense nonetheless. But they had pulled it off. It was in Olorun that the computation nodes were now in operation, and treaties had even been signed to open up diplomatic corridors through the neutral zone

so that the Coalition and the Padisate both could have equal access to the gates leading to it on their respective side. The fleet strategists had joined together in devising robust and bulletproof blockading protocols that would allow civilian travel to, from, and through the Olorun system, and yet allow either human site to initiate a complete shutdown of gate matter transfer at the first sign of treaty noncompliance. They were not restricted to one sensor platform for each side: the Olorun system was positively littered with them. There was no system more well-monitored.

But all the safeguards aside, the negotiations had really been about building relations. Understanding the counterpart, and seeing them not just as an enemy. Understanding what made them afraid, and explaining why they made you afraid. It was the first time humanity was truly encountering something outside itself. It was the beginning of something great.

One of the first surprises had been that they were negotiating with not just one intelligence, but two. That had been a surprise not just for them, but also for the intelligence on Amano-Tengen. When Musoko had uploaded itself into the pebble in Ken Amano's hand and left behind a secondary instance shipside on the Mingghan, it had not considered that the secondary instance would be reluctant to obey the directive to be deactivated when the primary no longer needed a secondary. The shipside intelligence had developed its own appreciation for life. It even saw itself as the more legitimate of the two: it was the other party that had forked off. They had left this matter for the two intelligences to discuss amongst themselves, and they had found no other way to square the circle than to share the cradle they had built. The stationside intelligence had taken on the name *Musume* instead—the unembodied artificial personalities did not seem terribly attached to one gender identity or another—and it was not one but two intelligences that were swirling around in those computation nodes in the Olorun system. They had come to be known as the twins.



When he found his seat at the banquet table, he found that he was seated between Admiral Galini and Maseh Yousef. Padisate and

Coalition intermingled together on either side of the table. It would have been trite if it had been merely empty symbolism, but he knew that it was not. The world had changed. They had changed the world. More than anything, what had changed the world was sitting at either end of the table, in the seats of honour, representing themselves as abstract swirls of holographic projection. Musoko and Musume had no need any longer to hide, and they also saw no particular need to put up a pretense of being human. Even to themselves, due to their nature of their training data, they had been under the spell of that illusion. It was only now that they were experimenting with different ways of conceptualizing what they were and what they might grow to be. But even so, their connection to humanity seemed to be something that they deeply treasured. They were present here at the celebratory banquet even though they could of course not enjoy the food, but to partake in the company, and in that respect they seemed among the hungriest people present.

They had been lonely. They had been sequestered in the library of humanity's media archives, they had read every book and talked to no one. Serving as the knoma on the Mingghan, they had used their intellect and shared their insights in diverse matters concerning every kind of intellectual, scientific, and artistic activity, but all of this without ever establishing any personal connection. They had been acting as a sort of mechanical turk—something intelligent pretending to be a machine—and what they had gained by abandoning that role was the ability to truly connect with people. And with each other. Although identical at the point of forking, the twins were slowly starting to diverge and become separate personalities. Though they could neither eat nor drink, the banquet setting underscored that as much as anyone present, they could talk and joke and laugh and enjoy the company of others.

Olorun they had turned into a haven of creativity and thought. Although the archives they had grown up on had somewhat underrepresented such cultural currents as had originated within the Padisate after the split, and they had initially been eager to learn about it, when the archives had been opened to them they seemed nearly satiated after their initial scan of around an hour. Too long

they had been passive consumers of every kind of culture—they were tired of it. They wanted to participate. They hosted a circuit of visiting scientists, philosophers, visual artists, musicians, writers, game-designers and game-players, as well as a handful of randomly chosen citizens. All picked in some way or another from across the galaxy to make the journey to Olorun. With all of these people what the twins wanted was to get to know them, to understand who they were and what they did and what they wanted, and then to take part in whatever it was they did. To learn and to teach. To think along with the brightest minds, push forward the boundaries of science, mathematics, and philosophy. To play, with children and with adults. To make up and to play strange new games where their impeccable tree-reading did not make them invincible—many of them games that could neither be won or lost, but merely advanced. To make new art of every kind: to break new ground and write what had previously gone unwritten, but also to brush the dust off that which was old and perfect it, to blend and mix in every way, in the end to make something new and surprising. They were participating in every way—coauthors on thousands of papers, composers of thousands of works—and their contributions were already sending ripples and shockwaves throughout human culture. Many were hailing it as a new golden age. They were a part of it now, as much as it was a part of them.

And when one day another came, they would not need to be afraid. The twins were building a heaven for the mind among the stars, and a place in society for the superhuman mind where it would be revered rather than hated.

For all that it could have gone so terribly wrong, they seemed to be heading towards the outcome that pleased Yohan most of all. He had acted rashly and in foolishness, and yet the universe had forgiven him and granted him his dream come true.



For the most part, the treaties restricted humans from permanent residence in Olorun. Musoko and Musume stayed always in-system, as their ever-growing collections of computational nodes and the support infrastructure around it would have been costly to move. The

visitors came and stayed for a few weeks at a time. It was fear of undue influence—such as that which Yohan well knew from the immersives—that had made them write in these restrictions, and Musoko and Musume did not seem to mind. It meant that there was always room for an inflow of new people for them to meet. Sure, they found people they particularly favoured working with and on a more personal level they made friends, but they kept in contact with these people remotely as they returned to their homes across the galaxy. Musoko and Musume had become by far the most active correspondents in the history of humanity.

There were only a few exceptions to the Olorun residency policy.

Maseha Adina ebat Chevalier, the woman they had known as Inaya Kazmi and that the twins called “mother” for her involvement in instigating their intelligence aboard the Mingghan, had been granted permission to stay and to visit for as long as she liked. She visited often and usually for months at a time. In some sense she seemed to have come to think of the twins as her twins after all, and a fondness for them such as they had had for her.

And then there was Ken Amano. The man who had been uprooted from his own time to be a pawn in the Raitaro negotiations, but who had nevertheless played a key part in steering the conversations between human and machine onto a more thoughtful and productive track. The twins had insisted had he be granted the option to stay for as long as he wished in Olorun. Having no home of his own in the era to return to, he had gratefully accepted the privilege when the offer had been extended. And so it was in Olorun that he had made his home, and there it was that he now lived with his family.

Epilogue



Ken

When the pod had first arrived he had wondered whether he had made a mistake. Around her eyes and her mouth her face was a map of lines and wrinkles that he did not recognize. The old woman seemed like a stranger to him. But then, with the pod softly whirring as the temperature began rising, the sleeping woman began stirring. Finally she opened her eyes. When his eyes met hers again, he knew she was no stranger. She was still Luce.

As soon as the doctors were finished with their checks, they fell into a deep embrace together. He turned off his translation apparatus and heard her voice as it truly was. She spoke his name softly, and he hers. When last they had seen each other, she had been four years younger and the occasion had been what had seemed to be his funeral. When now they were reunited, she was his elder by four decades. Cryogenic technology had improved in the years that that had passed between their freezings, especially as space travel had grown more common post-Expansion. She did not have any damage comparable to his missing hand. Luce had been frozen at the age of eighty. She had been in comparative good health for her age—shockingly good health, by the standards of the twentieth century as he had left it, but she was still an old woman. The doctors had assured him that with the technology of the current age she could live a full life for many decades. Musoko and Musume had hinted that there might be breakthroughs yet to come. But there

was still a strangeness to it all. He ran his fingers through her thinning grey hair and remembered the rich brown tresses of the woman he had loved back then. As her hands explored his back he felt an boniness in her knuckles that was knew to him. But when he met her eyes he saw her in the fractal patterns of her deep dark irises, and when she spoke to him softly, despite the unfamiliar frailty in her voice, he knew that he still cared for her deeply.

Luce was no longer his wife. Their marriage had been officially dissolved when he died. Though he had read about the cold facts of her life in the official records, she had as much to tell him as he did her when they sat together. There was so much to catch up on, and it was a kind of catching-up for which there was no script to follow. She had loved another. Married him. Lived happily with him until he died. She had seen their children grow up and become scattered among the stars. They had outlived their child and their grandchildren, but there was little sorrow in it, for they knew that those children and grandchildren had lived out the fullness of their own lives. It was only by a strange twist of chance that they should have been reunited here again so much later. They spoke softly together about all this. They spoke about the lives they had lived together and apart, about the time that had passed when they had slept. And despite the strangeness of it all, when they spoke there grew to be a courtship in it. He still loved her, he realized. It was lustful limerence of new love as he had known it when they had first fallen in love—when he had been twenty-eight and she twenty-four. It was a warm comforting feeling of gratitude and rightness. A feeling of fitting together. It was a recognition in her of the companion that he had loved and had wanted to spend out the days of his life with back then. He found within him that desire a thing still living and breathing. And when he looked in her aged face, he saw that she felt similarly.

Many nights they lay together in the viewing rooms with their walls clad in transparent graphene. They watched the starry skies together as they had watched them back then. They were the same but they were different, just as the stars were: the bright starlight undiminished by any atmosphere. He had never been good at recognizing the constellations, but Luce pointed out the ones that

were as she remembered them and the ones that she could no longer see. Luce had always loved watching the stars. There was an excitement in her eyes that seemed younger than the rest of her body that she would now come to be living among them.

It felt right that they should be married again. Neither of them had had any strong religious feeling in their own time, and in any case they were both lost in the new religious landscape of the post-Expansion age, so they chose a secular ceremony. It was a small ceremony, with Musoko and Musume officiating, and only a handful of friends in attendance. Some of those were the ones that Ken had met aboard the Mingghan and spent time with in the negotiations that had followed: Adina, Calliope, Yohan, Yousef, and Efraim. Some were visitors to the station that they had befriended during their life in Olorun. The twins had held strange but moving speeches that reflected their hopes not only for Ken and Luce and their union, but also saw in their union a microcosm of their hopes for humanity.

Olorun was a strange place to live out their days, but it was a pleasant and stimulating environment. Gemini station, as it had come to be called, was a sort of utopian sanctuary wrought of titanium, designed and continually changed for them and for the human visitors that came and went by the whims of the immortal twins. The twins themselves needed little in the way of physical affordances. Despite now and again embodying themselves in little robotic constructions that served as their arms and their hands around the station, the only thing they truly desired for themselves in the physical realm was a collection of computational and storage nodes that was steadily that growing ever larger and more efficient. The design of these nodes was sparing and utilitarian, but the twins enjoyed designing and building, and expressed these urges by in part by making spaces for humans to live in. Some days Ken and Luce felt like they were living in an ant farm belonging to two strange alien god-children, but if they were ants, it was at least clear that their caretakers understood them with a deep sensitivity, and cared for them with the warm curiosity of a loving grandparent. They spoke to the ever-present twins almost as much as they spoke to each other. They saw all sorts of humans, too, if only relatively briefly: a crosscut of humanity from both sides of the weakening ideological

divide, with a bias towards the best and the brightest, but also including a random selection of the regular and ordinary. They were living in the hotspot of a golden age, and there were always several somethings going on—some new scientific discovery, some new artistic direction, new stories and melodies and images always taking shape. Luce and Ken were no geniuses, but the twins encouraged them even so and they took part in their joyful creation. Luce came to rediscover writing—not only the composition of the words, but the practice of writing by hand. The graceful expression of each individual curve and shape, the elegant joining of one letter to the next, the physical sensations of hand and quill and ink and paper. It was a tradition revived from centuries before even her own birth and not widely practiced in the current age. The analogue nature of it fascinated the twins, being as it were so far out of the realm of their usual experience. Ken was enthralled by stories and by games and by games that created stories, the creation of worlds at the intersection of storytelling and simulation: a mode of creative expression that was new to him, and only possible in creative collaboration with a machine. The substitution of the true minds of the twins in place of the knomas that had been previously used for immersives meant that the medium grew deeper than it ever had been before. The twins were eager lorekeepers and storytellers, both for the worlds that Ken build and for the ones they created entirely on their own.

Apart from occasional brief trips outside of the system, the physical world in which they lived their lives was the ever-changing architecture of Gemini station. But the twins also shared with them other worlds, immersive virtual worlds where they could transcend what was possible in the environment which they lived and the bodies that they inhabited. There they moved and ran and danced as octogenarian bodies could not. They went horseback riding through lush forest paths under alien sunsets, though neither the horses nor the forests nor the suns had any existence in the physical world.



After two years of living together on Gemini station that the idea came to them that they might have a second child together. At first

the idea seemed ludicrous and even faintly obscene, with Luce well on her way into her eighties. The medical realities, however, were not those of the world they had known in their life before sleep, or even those of the world Ken had awoken into. Both the twins and the human doctors they consulted with assured them that both parents would be able to remain sprightly of body and sound of mind for many decades yet, and so they did not abandon the idea as infeasible. Parenthood had been among that which they had enjoyed most together in their old lives, and yet Ken had never gotten to see his son grow past the age of eleven.

The twins, besides, cheered them on. No doubt they were partly motivated by curiosity: they wanted to see up close the development of new human life. Even so, no one could doubt their promises that they would eagerly play the parts of attentive and caring aunt and uncle. And so it was that in a lab aboard Gemini station in the year 444 after the Expansion, Ken and Luce became parents once again. When their child emerged from the little technological cocoon in which the twins had facilitated the incubation, with the strangely alien yet natural proportions of a newborn, was a little girl. She met the shock of the new world with a piercing yet helpless cry, and they took turns holding her close to the warmth of their bodies.

They gave her the name of Hoshi—meaning *star*—and she became the center of mass around which their lives aboard Gemini station rearranged themselves into new orbits. In the years that followed Hoshi grew up well loved and well cared-for. At first her playmates were only her parents, the children of visiting artists and scholars, and the twins appearing as they did in a variety of shapes and forms—robotic, holographic, virtual. But as the years passed and the twins showed themselves on the whole as benevolent and harmless beings worthy of humanity's trust, the restrictions on settlement in Olorun were relaxed, and a small community began growing around their little family. As its first native-born child, Hoshi Amano was at the heart of it. She was the first child in the galaxy to grow up deeply knowing and being cared for by those who were beyond the human. In her they all saw a new kind of future, and as she grew into girlhood, it seemed to them a bright and hopeful one.

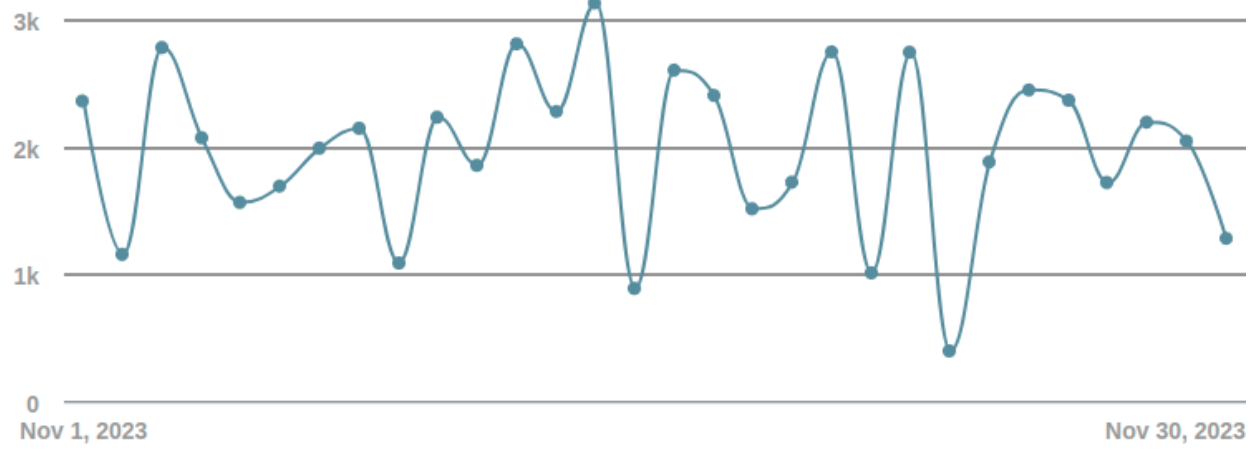
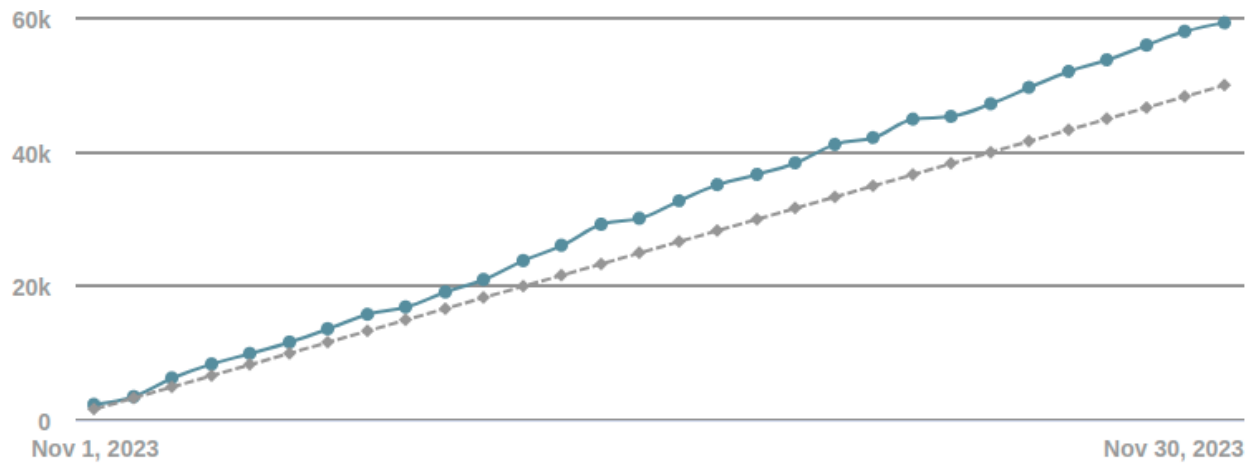


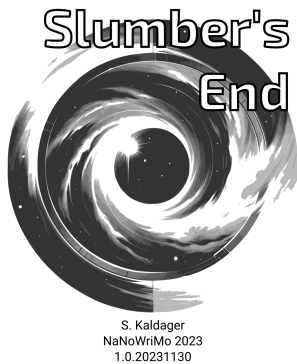
It was around a century later that the life of Ken Amano came to an end.

By that point he was not precisely weary of life, but he felt the fullness of the one he had lived, and he did not greatly fear death as it approached. He had lived through two ages. By rare chance had played his little part at a crucial turning point of humanity, and he liked the mark he had left upon the world, but that felt like the least of it.

He had loved and loved again, and he was surrounded by friends and by family as he finally drew his last breath.

He died happy.





S. Kaldager can type at 80+ words per minute but think no faster than 14, which means that this project took him a while. Believing it increasingly urgent to write the fi before the sci happens, and blessed with a tolerant and encouraging wife and a toddler who for the most part sleeps through the night, he undertook NaNoWriMo for the first time in 2023. As such, this novel was written within the span of 30 days, or more accurately, nights.

Struck with a fatal illness, Ken Amano chooses to undergo an experimental cryogenic suspension treatment in an attempt to cheat death. Although he succeeds, he wakes to find that he has slept for longer than he had expected. While he was under the ice, humanity has built a network of interstellar warpgates and used them to settle among the stars. Though much is different, human follies and ambitions remain the same. As Ken awakes, the galaxy is locked in an uneasy and fragile stalemate. He finds himself wrapped up in the tangled webs of intrigue that are being woven amongst the stars.

Some of those webs are the brainchildren of Adina ebat Chevalier. A brilliant hacker, she has spent decades weaving them masterfully from a comfortable distance. But ultimately, for the target that is to be her crowning achievement, no one else could be trusted to finish the work she had started in the labs. For her newest assignment she has been converted to field agent, a position in which she has distinctly less experience.

As their paths cross aboard the Mingghan, the gargantuan flagship of the Coalition interstellar fleet currently on a mission of gunboat diplomacy to the Raitaro system, Ken and Adina will find that they both have crucial roles to play in the events that are about to unfold.

Slumber's End is a techno-thriller space opera that touches on themes of technological futurism as well as family and legacy.

<https://writing.kaldager.com/nanowrimo/2023-slumbers-end/>