



# STARQUAKE

PART 1

---

THE ATTACK  
OF THE BANTAM BAY

EDWARD JOHNSON

Cover Image:

**The Tarantula Nebula**, within the Large Magellanic Cloud (LMC). This dwarf galaxy is one of the closest galaxies to the Milky Way, and a part of the southern constellation Dorado, and is where the events of this story take place.

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## 01 CHAOS IN THE BREACH

From darkness ... came the crackling electrical pulse ... from that emerged a mind. A will. A voice.

Commander Shim's console at Earth Orbit Command station sounded — *WHEEEEEEP—WHEEEEEEP—WHEEEEEEP—* “Incoming message for ... Commander Shim ... Secure Message ... Repeat ... Incoming message for ... Commander Shim ... Secure Message ...”

Looking up to his two staff he nodded—they quickly left the room and he spoke to Olive, the name of the mainframe, “Secure room, Olive.” The mode indication lights turned from daylight to sunburnt orange. “Message,” he said.

But when it opened it was just a black screen.

“Who is this?” he said impatiently.

The galaxy's most hated yet still a strangely soothing voice spoke, “I am taking the colony for myself.”

The cold demand was met with stunned silence ... the Commander managed a wavering, “—W-why? Which one?”

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"Yor's Mine and Colony."

"But why do you want it? It's full of more than 20,000 ... 25,000 ... *people*."

"I don't want *ANY* people. But leave the animals—I want the GM's."

To take orders from an enemy was beneath the Commander's dignity—but Waveform was something altogether different. He choked on the words, "Do ... I ... evacuate—"

"I already informed Captain Yor. It belongs to me now." The transmission ended with a cackling electrical 'zzz-iii-ppp'—

Olive's voice returned, "End of secure message."

"Crack it! Get me Yor!—*Randall?!'*"

His two staff quickly re-entered, "Commander?"

"Randall, get me Captain Yor! Tell him to evacuate his colony immediately, and—"

"Sir—he already left."

"What do you mean? How can that be?"

"His coordinator told us this morning; he suddenly retired and is already on his way back to Earth in hyper-sleep. He gave instructions not to be disturbed until he reaches Earth Area of Responsibility, at least 6-8 weeks."

"Going the long way around? Well, did he evacuate his colony? The *people?!'*"

"Not that I know of. Is there ... a problem?"

"There's going to be ... a *massacre*."

Sergeant Jinky, the female staff spoke up, "But who is it? Pacifica?" referring to the United Pacifica Space Command, whose border was near Yor's Mine and Colony. But no—

"—It's Waveform," he said like a death sentence.

She audibly gasped! "You mean ... Can we warn them? What can we *DO?*"

With a fatal resignation no military commander is trained to evoke, he sadly said, "All *we* can do now ... is pray."



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## 02 SPACE GOLD

Oranges and chicken, beef, fish, corn of course, squash, carrots, potatoes, oh yes, strawberries, lemons, apples, avocado and coconuts — the colony on the small, cold but rocky planet of Jamespur IV was a bountiful breadbasket, a jewel in the necklace of the roster of 360 settlements and space mining colonies the North American Space Union defended and supplied in the Large Magellanic Cloud, one of the Milky Way's closest dwarf galactic neighbors.

The connecting network of hyperlight 'tunnels' that radiated out from the Earth system like arteries now brought a steady flow of people and goods to and from more than 30 deep space junctions, many of them nebulas. Other tunnels linked junction to junction and some even formed bridges over troubled waters bypassing nuisances great and small, from active military conflict zones to mere areas of galactic low rent neighborhoods.

From these deep-space drop-off points like Milesbridge Junction and Astroterra Junction, local space travel extended to a tiny fraction of a tiny fraction of the more than 13,000,000,000,000 (13 trillion) stars tantalizingly within reach of that beautiful relativistic blossom.

The first three tunnels were made to connect Earth with areas of interest for discovery and research. First of course was the tunnel to Sagatarius A\* for research purposes mostly, confirming the presence of the SMBH at the galaxy's heart ... and causing the death and destruction of every research crew and hopelessly delicate probe sent there to observe it. Not a promising tourist destination really — who knew?

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Second was a tunnel to the local Orion Nebula but which proved to be much less densely populated than had been previously advertised, leaving astronomers hanging as it were by a cosmic trapeze.

Thirdly, some bright personality convinced the exploration community that if they were looking for a destination with several competing hot spots of interest, the subject with the most legs to run on was the Tarantula Nebula, otherwise known as 30 Doradus. This starburst region of the nearby dwarf galaxy we call the Large Magellanic Cloud or LMC is the brightest nebula we know of and at 2,000 light years in diameter is 100 times larger than Orion and literally teeming with globular clusters, open clusters, new stars, old stars, recent supernovae, old kilonovae, Goldilocks planets, marshmallow planets, and reported sightings of high velocity stars screaming away from the breakup of the binary pairs they once called home! “Yipee, I’m *freeee!*!”

Pregnant with possibilities it is the most active star formation region yet discovered and not only does this large, bright nebula have more than 100 star clusters—oh, sorry I mean 1,000 star clusters—but is such a prolific stellar nursery it gives birth to over three new stars every single day! Mazel Tov to the new parents!!

At the other end of the spectrum, one older cluster, known as Hodge 301, has itself already enjoyed nearly 50 supernova alone! But most stars within its distended belly are blues, dwarfs, giants and supergiants, and as bright and beautiful as they may be, many also tend to be very short lived.

Another noteworthy star cluster of the LMC within the Tarantula Nebula is known as NGC 2070, wherein resides the justifiably famous ‘R136 bright spot’ which once was thought to be a single bright star but in fact turned out to be more than 3,000 luminous orbs packed closer than sardines in a tin! That one bright spot alone provides enough light to illuminate the entire nebula itself! No wonder, since its dense collection of hot, bright stars weighs no less than 450,000

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solar masses! If you lived anywhere near it you would never know what it was to experience night!

R136 also contains several hundred stars of remarkable significance, several of them being the most massive and luminous stars ever discovered—many 2, 3 and 5 MILLION times brighter than our sun—including star R136a1—a highly luminous Wolf-Rayet star of some importance. Not only is it one of the hottest main sequence stars known at ten times hotter than our sun, penultimately is it the most massive star known at 275 times the weight of our sun—and it's already lost almost 50 times the weight of our sun in ejected solar winds! But finally R136a1 is veritably the single brightest, most luminous star we've ever discovered shining at almost 10 million times brighter than our own dear sun—R136a1 radiates as much light as our sun does in a year ... every four seconds! It's burning so fast that while our sun will live to see more than 10 billion years pass before its eyes before it bows out at its final curtain ... R136a1 will surely exhaust its fuel and explode in a fiery swan song in a measly two or three million years, at most! In this case it's true that some prefer to live fast and die young! But it's still so bright if it were as close to the Earth as many Milky Way's stars are we wouldn't be able to sleep at night due to its starshine. "Turn that thing off!! I have to work in the morning!"

R136a1 is also a stellar bachelor; it has no companion star like a vast number of stars do. Double (or rather binary) star systems, and even triple (or rather trinary) star systems are by far the most common visible stars, rather than the mournful single stars like our own humble spinster-like Type G main sequence yellow dwarf! It is strange to learn that a star living alone and without a stellar companion is in a great minority of domestic arrangements. It seems that even the universe is preferential for it's inhabitants to have a life companion, rather than being doomed to spin out their dreary existence in depressed solitude. <Sigh>

Containing more than a million objects of such exotic

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interest, the Tarantula Nebula was certainly ripe for explorers to crawl over as it harbored so very plentiful hair-raising sites promising rich rewards for close scientific scrutiny; sticky webs of nebulous filaments had entangled juicy morsels of such very high market value mineral deposits that they were just crying out for commercial exploitation; and it featured multiple star systems like pairs of venomous fangs easily numbering in the tens of thousands comprised of double and even triple stars, ready to be milked for their astrometric medicinal properties, well, metaphorically speaking of course.

This beautiful nebulous spider sits within the constellation which some call Xiphias but others call Dorado, but no matter which way you slice it, it's the ideal spot for deep space sport fishing.

So with more than ample evidence to surmount the threshold of proof and turn the heads of even the most bronze-foreheaded skeptics that like picking the choice candidate for the signature exhibit in a cosmic zoo, the Tarantula Nebula was indeed the right specimen to be added next to our growing interstellar collection of hyperlight tunnel travel destinations.

And so this is where the third space highway was built to allow people to visit this beckoning destination—and by fair comparison traveling with the kids to the Large Magellanic Cloud from the dinky, dark and depressing solar system we hail from was like traveling to the sunny tropical paradise of the Philippine Islands from a frozen Siberian detention camp. You can bet it was going to be a popular tourist destination, and it was, or rather is.

Insensitive of me to bring up mention of the cloud named after Magellan and the Philippines in the same metaphor, but sacrifices must be made when one wishes to become a star. So if you took the Mars Hyperlight Tunnel #3 and exited at Tarantula Junction by Binary '9,312e, got off the highway

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and took a right towards the new housing developments abounding in proximity to Astroterra Junction just a few kilo-parsecs south of Hodge 301, in a few weeks moving at oh, about 12 million kilometers per hour, you would come to a beautiful tract of hundreds of rocky planets like coral atolls and palm-flagged Pacific islands in a vast empty ocean that are ideal for mining and terra-forming outposts now known colloquially as the Middle Rim Colonies.

So it is not surprising that when Captain William Yor first stumbled upon the trial mines at Jamespur IV he simply fell in love! He also liked the mines. So he and his newlywed wife bought the mines from the exploration company — at a very low price I might add since it was not earning very well and needed more investment and development to make it commercially viable — but as a colony engineer, frontier explorer and former Earth farmer, his wife knew just what to do to really make it profitable. Grow food!

Yor's Colony had the first large scale commercial farms in the Tarantula Nebula's middle rim and that gave Yor's mining operations something no one else had, cheap food. When they began most food was still being shipped from Earth! But remote mining is more often than not purposed, as we say, for In-Situ Resource Utilization, meaning for local building and manufacturing use, and not intended to be shipped back to Earth. Colonies must quickly become self sufficient if they want to survive! And that means they need to produce more than oxygen, iron and deuterium! And that's why they used to joke, in Yor's case especially, that corn was the OTHER gold being mined in space.

Yor's mine could grow almost anything people said! And as time went on their privately owned Mine soon became a firmly-established Colony as well, and yes remained a very profitable one right up until the events contained in this narrative. Luxuries of water, heat, air, money and manpower gave Yor's Mine and Colony a pre-eminence among outer

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settlements. Maybe that was why they were attacked? It made sense to some.

The colony now boasted a population quickly fast approaching 30,000 human souls, nearly half of them under 19 years old—a young, growing population. The two schools were filled to capacity and they were ready to expand Middlebury, the kindergarten-elementary-middle school in the next phase of construction, Phase 6.

The greenhouses and food factories, some up to 200 meters deep with 33 floor decks for growing their rich produce, which was mostly for export to other colonies, were mainly built at the center of the initial development. Residential housing blocks sheltered in their shadow along three main roads that linked the three points of interest in the small town: the Mine, the Airport (they still called it an 'airport' funnily enough), and the Old Town, the original HQ complex.

Currently in construction development Phase 5, the Old Town was undergoing a gentrification urban renewal at the moment and they were upgrading many of the original structures and even building 12 more fish farming ponds, three new housing blocks, a new mall to expand the retail area, more light industrial factory space—all in the Old Town neighborhood alone—as well as six new produce blocks all 200 meters high (or rather deep), and other living and working space upgrades.

There were many dozens of mining camps spread all across the planet, but of course the primary colony mine itself was ALWAYS being expanded and now occupied a volume of more than 30,970 cubic kilometers, with a surface area of 3,600 km<sup>2</sup>, and in some areas operating at a depth of 19 km. A rich source of REE's, or rare-earth elements, which also happen to be rare-space elements, there were many other mining sites across the planet as well as concentrations of precious metals gold and platinum, and rich iron ore! They also just began producing fresh water in very, very large

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amounts.

So the colony was expanding to deal with traffic congestion and overcrowding but they also hoped to add another 25,000 residents to their population within the next five years alone.

The future of Yor's Mine and Colony was certainly bright.

And so it was odd that Captain Yor and no less than 40 key administrators in the civil administration including the Mayor and Town Manager, the 'Police & Security' Chief and others—with their whole families—suddenly left! It was unexplained and down-played. Some were simply seeing Yor off, they said, as he was the colony founder who was now nearly 95 years old and ready to retire and they wanted to travel with him (who was in hyper-sleep!?) at least to the Earth system. It was their way to honor his long years of service, they said. Some said they were visiting Earth on a long-overdue vacation; others made no excuse at all and simply vanished!

Left behind in charge of the colony, still a privately owned company, was a handful of newly commissioned GM's—genetically modified animals. Humanoid, but with sometimes astonishingly augmented senses and abilities.

There were seven GM's plus one 'thinking machine' left in charge. First I have to mention Acting Commanding Officer John 'Sabertail' Labrador, a five-foot two-inch tall Black Labrador Retriever—meaning only that his base genome was a Black Labrador. His counterpart, and former senior officer, Golden Lars, was based on a Yellow Lab. They were almost inseparable!! ... almost ...

Golden was slightly taller, more ... well athletically he was, I mean he used to be a better ... I mean ... well, things got really complicated after Yor left.

Maybe it's better if I just let John Sabertail explain this in his own words:

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Taken from interviews with survivors:

—John Sabertail, Dog (Halifax SciTech)

He breathed deeply and said into the camera with a shaky voice. “I’m trying to tell you this part of the story. It’s hard to tell this part—*breathe*—OK ... I’ll just tell you the way it happened.

“Yor left, the commanding humans in charge of mostly everything important also left, and a few days later, not even a week, we saw something approaching—it was maybe two days out. We assumed it was junk traders, or merchants. They wouldn’t ID themselves, but sometimes traders from non-government sanctioned outposts and Freetowns are flying low under the radar so to speak, and we didn’t take any special notice of it ... but then the bombs began to fall ...”

—Beatrix ‘Flipkick’ Mintz, Rabbit (MarsTech Labs)

“I was in the mine and didn’t know anything until it was almost over. Then I was kicked over by a shock wave and when I ran out the mineral stock yard was so heavily damaged the air pressure was really low, it hurt my ears. I have big ears right, rabbit ears, but no, I have human-like ear drums, and I kept having to pinch my nose and blow to adjust the pressure like I was SCUBA diving. I finally had to grab a portable breathing mask and when I finally came out into the colony proper ... everything was ... *destroyed* ... there were flames in some places, other things were frozen, and there was debris and injured people everywhere ....”



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—Teddy “Rocky” Bear (also MarsTech Labs)

“I was near the old HQ and I saw the first explosion and without thinking what I was doing I RAN to the rock gun turret near the HQ. It’s about 200 meters high but I was there in I think about seven seconds. I was counting, you know. And I got there and I didn’t even know what I was shooting at. But I threw open the safety and actually broke the regulator I ripped it so hard. Yeh, I’m pretty strong. I didn’t think of it at the time but I could have broken the gun! Thankfully it let me shoot full automatic. It’s a kinetic projectile system, not a beam weapon, since it’s made to shoot meteorites and things but that morning I discovered, we all discovered that it works really good at shooting pirates out of the sky, especially ones that are bombing your home.

“The million dollar shot? Yeh, they call it that. I was shooting low across the tops of the greenhouses and I already hit seven or eight attacking ships or pods or whatever you call them. And I saw one opening his bay doors—I was already shooting near him so I zeroed in on his bombs as they came out, there were three that I saw. I was too slow for the first one, it hit the Green Bay housing I think. And the second—I kept firing at it and I think I missed it but I sure hit the third and it blew the pod up *properly*, I mean it must have had other bombs inside and they all detonated—*Ka-boom!*—it *disintegrated* his ship. It also knocked out part of the nearby greenhouse but that was already hit so I hope I didn’t make things worse, but it stopped them from bombing the high school and the HQ, I mean the Old Town, because that is

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where I think they were headed. The last ships turned around and left after that. I wish we had all the rock guns automated, I know it's illegal, but then I doubt we would have gotten hit at all."

—John Sabertail

"I've been to Earth, for real, not too long ago, and I've been to that place they call Austria, and when they began bombing that's what was in my mind: the shattering of a beautiful stained glass window, the destruction, the wanton destruction of a priceless work of art. I was hearing that song in my head—that famous waltz about the Danube?—I was hearing it in my heart actually like the attack was somehow orchestrated, and seeing the flames, the shattering, the instant freezing of the plants, the cows, the people ... *oh, the people ...*

"I saw Mr. Stevenson. A bomb blew him into the air in a cartwheel, his eyes were wide open totally in surprise but not in pain or fear like it was so sudden that he didn't know what was happening ... and he was looking right at me and he flew like a doll, then the vacuum of the night sucked him up and right out of the hole in the roof ... his wife too. I watched that happen ... and then ... then ...." The camera lingered long enough to see John, looking so helpless off into the corner of the room and begin to break into tears and he covered his face with his paws in shame and started to sob.

The pirate attack left Yor's Mine and Colony in complete shambles. The main HQ operations decks, nestled safely

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under layers of steel and concrete suffered only minor damage and were still structurally intact, but several of the colonial housing areas and main farming greenhouses where the colony grew so much of its renowned produce and livestock, the mining operations inventory yard, the new 'airport' landing bays and BOTH schools were all heavily damaged—one school almost completely—most people feared the colony was simply beyond repair.

Another catastrophe that seems funny to people at first, but was an unmitigated disaster was the loss of the town's autodriven traffic management 'car net' system—which was now so broken that no autodriven, Robotcars®, robot taxis or delivery drones would self-drive at all! Those few who owned autocars or other vehicles that had a manual override were now driving themselves around crashing into everything, especially each other! It was literally CHAOS! Almost no one, besides the GM's really, had any experience driving a car off-grid! So most people just had to walk around to get anywhere they were going or to get anything done! Thankfully it was a small town but it practically gave the town a seizure of mobility and transportation of even basic goods and made emergency recovery that much more difficult.

Several days after the attack John, Beatrix, Rocky, Leonard and CJ were all in the HQ.

Rocky, was at a large console and was wearing an enormous armored munitions vest, and since it was custom made to fit his 9-foot tall body, instead of just normal camouflage colors he customized the sylvan mix of greens and browns by adding his favorite color to the pattern—bright orange! Then the giant but very distracted bear grunted loudly—exhausted, he was taking a quick mental break by watching race highlights from the Zephyr Cordon's series recent 'Coke 2,202' race held last week on Astroterra.

Zephyr Cordon were race vehicles that resembled water

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bugs with extended legs delicately resting on top of the water surface, but in fact these were electromagnetic grips that gave the vehicles both traction and propulsion with 360 degrees of movement along the twisting and winding tube-like race track where they raced at speeds nearing 600 kilometers per hour. It was fast-paced and intense to watch! This was ironically helping Rocky calm down and clear his crowded thoughts.

He grunted because the console Rocky was at blinked twice, interrupting the race, with the message, 'No response. Try again?' He hit the green 'Resend' icon, and informed the others, "No reply yet from our distant cousins at NASU. I'm just not feeling the love!"

John repeated his standing instructions, "Just keep trying. NASU has to honor our defense treaty! It's been more than a week! They haven't even radioed yet!!" John wasn't in the mood yet for humor. Rocky was almost never not in the mood!

Trying to sound smart, Rocky suggested, "Well if they don't know who attacked us, maybe the North American Space Union bureaucrats just can't decide if it's in their treaty obligations to respond?"

Beatrix, the kick-boxing rabbit snapped, "NASU's treaty covers ANY operational crisis. Whether it's from Pacifica or Basta or *pirates*—it makes NO difference!" Beatrix was also not in the mood for this kind of wild speculation.

Leonard the mouse, the tech officer, said rudely "Pfff! They have to come to our aid if we even have simple operational hiccup—let alone a full scale military assault! Last time they came in like a flood because there was a code compliance error in the public market toilet flush program. "

Beatrix added, "The worst part of the tragedy is actually beginning to be the complete absence of any military support from NASU!—*SILENCE!*"

Rocky added, "Well, their 'silence' is louder than 10,000 bombs exploding! Do they want us to take a hint?—Maybe

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they're working together, the pirates and NASU, to get rid of us? Maybe that's why Yor left?"

But that was too uncomfortable, too near the mark of everyone's deep suspicions that no one dared comment.

John Sabertail was not really listening to the chatter—they were currently using the consoles in the recreation deck, the *rec-deck*, two levels below the main level because the main operations bridge was damaged enough to be a nuisance to interface, but also the *rec-deck* screens were larger. The bombs that hit the Old Town scored a direct hit only to the original fish pools and mercifully only killed fish—the plume of water jettisoned into subzero air froze like a flower in bloom. But the blast did damage parts of the HQ operations deck, the kitchen and some staff rooms, but not very seriously.

John had now been awake non-stop for the last five days straight trying to fix everything, but the damage assessment itself was far from complete. The mainframe, named Livingwater, who had an old Texan persona, was not functioning normally.

John read the incoming report on his screen out loud, "OK, Several pressurized living areas are still leaking air into the freezing darkness, especially at night!"

Leonard said sarcastically, "It's kind to call 85 degrees below zero merely *freezing*."

"Several greenhouses and food factories were completely destroyed, others merely ruptured, but even this killed most everything inside instantly, and with the toxic debris of glass, rock fragments and insulation sprayed onto everything—and since the outside atmosphere is mostly ammonia—what wasn't frozen, smashed or contaminated with debris has now been saturated in ammonia and is simply inedible! Great!"

"How many cows and chickens survived?"

"Survey says—well it's incomplete still—but survey says ALL the cows were lost—25,500 head. The chickens were mostly all lost too—and they were breeding over 15,000 a

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day.”

“But how did so many hundreds of chickens end up running loose in the colony living areas! Did they count them as well?” Rocky was hungry, not always, but especially when discussing anything related to food!

Beatrix said, sounding annoyed, “Yeah, there are chickens EVERYWHERE!”

“I don’t know yet. But those two key facilities are basically a complete write-off. And whatever few chickens did survive are more often than not now being hunted down by surviving colonists for food!”

“How do you cook a ... *chicken*?” Leonard was trying to run through it in his mind by saying this out loud. No one had an answer!

Rocky then spoke up, cheerfully, “Well, the good news is, according to Livingwater’s assessment, the large, deep underground magnetic coils are maintaining a good flow of magma close to the colony base. So the coils are still working!” That meant that even with nearly 100-degree-below-zero temperatures outside during long winter nights, the ground would continue to stay warm enough near the colony to keep people alive!

“Yes, but like I said, we’re still losing warm air.”

The small planet’s atmosphere was toxic and usually frozen, and of such low pressure especially during nights that it was very much like being in a vacuum. Day cycles on Jamespur IV were warmer and outside air pressure was more reasonable, but still toxic of course. The Day/Night cycle on this small planet was a little longer than 82 hours, but the Colony was kept on a rigid 24 hour light cycle with slight seasonal variations as you would expect in a sub-tropical latitude, which it emulated.

But the gravity of this small but dense planet was very similar to Earth so muscle atrophy was never a major concern. Especially now compared to this catastrophe. What with the beautiful development and friendly city, good

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economy, low taxes and so many business opportunities, but now saying what everyone was really thinking, Beatrix sighed, “I just hope this doesn’t mean the end of Yor’s Mine and Colony. It was just such a nice place to live!”

“Yeh, WAS ... past-tense!”

John was focused on assessing the damage but what was heaviest on his mind was not repairs, the economic shock, the apparent abandonment by the military or that Captain Yor, the colony founder, who had retired so very publicly just a few days before the attack, that it looked very suspicious. Yes, the fact that so many ranking humans also left and put the team of GM animals in charge of the colony operations without any meaningful human oversight at all made it look doubly suspicious, more than suspicious, overt ... but personal betrayal was also not his main worry or concern right now, instead it was simply the condition of the suffering people he was entrusted to protect. Duty bound? No, it was more than duty. Was he simply BRED for it, you mean? Sure, but deep down there was something else, something more. There was a thing deep in his heart that compelled him to love and serve people, which he could not put his paws on and identify or name, but it lived in his heart and was just as real as I’m talking to you right now! John loved people.

Then his console beeped—the latest casualty report was done. John breathed deeply to steady himself and said out loud to the others, “OK, latest casualty report: The colony suffered more than 9,000 casualties, 1,400 of them fatalities, many are still missing (or evacuated) and no exact tally of those who are still recovering from life-threatening injuries.” His words resounded in the air, no one needed to be told twice.

All this devastation and destruction out of a population of less than 30,000 meant everyone lost someone they cared for, every family was hurting—and many people were frankly looking for someone to blame!

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The hospital in the Old Town was hopelessly overrun and every open space especially in the town central park and plaza was turned into a make-shift hospital ward. Everyone was preoccupied with survival first and evacuation a close second. Some with private vessels had already left, complicating the final tally of missing persons, but without many deep space-worthy ships on hand, besides ore and cargo containers, most of the other colonists had to sit tight and just wait for rescue.

It was odd because up until last week the number and frequency of deep space vessels docking and loading, unloading and transiting, or some just stopping over for a few refreshments was practically innumerable ... now visiting ships to Yor's Mine and Colony were so scarce it felt as if they were being avoided like the plague, like an infected person in quarantine ... but it has to be said that even people in quarantine got more visitors and well-wishers than Yor's Mine and Colony did! There were certainly no get-well flowers, no sympathy cards!! Yor's Mine was suddenly and almost completely forsaken, left high and dry without pity or compassion ... and yes, it felt like there was something everyone knew but them!—a more tragic turn of events could not have been imagined! But the GM crew were real troopers!

The team just put their heads, and tails, down and went dutifully about the task of emergency response to save the settlement and put it back on its feet as best as they knew how.

Like most of the GM's John's sense of smell was dialed to a 15! He could smell scents better than you could see colors! He also had a cute smile, a cute personality, and also acute hearing.

So he knew long before he could see her, that First Officer Fenix, a combat-ready professor who was based on a black-and-white Marbled Fox, was headed their way.

She briskly walked in, handed a report folder to John, and



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turned to walk out of the room, and paused just long enough to inform the crew, “Arabel is done in surgery. She’s back tending to the prisoner now.”

John spoke up, “Hey Beatrix, did you give Fenix the list of canceled shipments? They need to go to arbitration.”

Beatrix answered, “Oh, Rocky’s got it, not me.”

“Rocky?”

“Rocky?” he repeated.

“Umm?” Rocky’s mind was zipping around a tube at 600 kph on far away Astroterra!

John spoke up, “The shipment contracts? Needs to go to—” John pointed to Fenix waiting impatiently by the doorway.

“Yeh, it’s ready!” Rocky swiped his console and sent it to her tablet. “‘k? Got it? Oh, there’s two not claiming coverage! Must be illegal goods!”

“Yup, thanks ... oh really! That’s interesting. We’ve been doing business with smugglers!” Fenix’s eyebrows were up!

“Yeh, and it took a pirate attack to find out!” quipped Beatrix, “How ironic!”

“Yeh,” Rocky said, “and just tell me if you need any more ... *thing* ...” but he yawned widely—such big teeth!—and was already back racing on Astroterra before he could even finish his own sentence.

“Well, nice talking to you, *Rock*,” Fenix said jokingly, and paused just for a second to look at John for his acknowledgment and an expected chuckle; he didn’t even look up at her. Her heart sank. Snapping back to her ‘officer on duty’ mindset, she turned purposely and left the room with a quick swish of her pillowy tail. Not all the damage done to the Colony was physical, you know.

Submerged in work, John’s saber-like tail was rhythmically wagging slowly side to side in worry as he looked over the screens of damage assessment. He was drinking a large coffee, wearing one of his favorite static pattern tee-shirts—

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the one with an image of a vintage Triumph 6T Thunderbird motorcycle over an American flag with the words 'Gypsy Tour '54 ... Loudon Classic ... Weirs Beach' — although he had little idea what it meant, and no idea of the factual errors it contained as the Loudon Classic was not so named until 1964 and the Triumph was actually a British-made motorbike — but it reminded him of Earth culture ... and freedom. It was also an old kind of tee-shirt that had only one image hard printed onto it — not the kind that you could constantly change the image on or even the fabric color of — a little old fashioned I suppose, but he liked the stable image, the natural cotton fabric; like it was something reliable he could always count on.

He also wore a thick belt, mostly to carry his sidearm holster, but no pants, and was quietly humming as he studied the reports — also developing a contingency operational plan, an emergency business model to quickly raise funds by selling stored minerals and water at very low prices, a hierarchy of repair priorities — all that and a better plan to keep the colony legally defended militarily NEXT TIME. Oh, and a revised food rationing plan to ensure there was enough food to last another two months as a worst case scenario. Yes, not drowning but completely submerged in work ... underwater!

And now standing next to John, and also deep in thought and reading the same damage reports at the display table was Beatrix, the new Second Officer, who was what you would recognize as a bunny rabbit, if she weren't five-foot-nine — over 175 cm — but she looked considerably taller due to her long ears that were like Bugs Bunny — but you took your very life in your hands if you ever said so in her presence! — as a champion and deadly kick-boxer, which was how she earned the nickname 'Flipkick,' she had the musculature of a serious body-builder, although it was mostly hidden under her luxuriously silky, tawny fur — she was an ideal athletic

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specimen and a real beauty to behold. Oh, and she smelled marvelous!

“Oh, not that it bothers me,” she said, “but several families with children already mentioned to me—” but no one was listening ... It gave her a candid moment to add under her breath, nearly in a whisper, “—I wish I could have babies—”

Yes, the one thing missing from Beatrix was her babies. She had a mothering instinct that would sadly never be fulfilled. I didn't mention it before, but GM's are made sterile. None can breed—I mean none can reproduce offspring on their own. It didn't stop her mothering instincts, so instead she took to mothering the team—'smothering' the team was more like it sometimes. But you knew you could trust her. She had your back!

“Hmm?” ... that meant John was *kinda* listening.

She repeated herself, “I said, not that it bothers me *personally* but several families with children already mentioned to me they're worried about the temperature falling so low inside the colony. They asked if we can't just turn up the heat a little.”

John looked at the console, “Why is the temperature still falling? The air leaks alone can't explain it. But Livingwater says the magnetic magma coils are all still working.” He exhaled in frustration, “How can we solve a problem we don't even understand?”

“I'm just telling you what they asked me. Livingwater, can you just turn up the heat? And why do we have to keep reminding you?”

“Sorry, Ma'am,” the colony mainframe replied with a slow, Texan drawl. “Don't you fret, now, hear? I'll take care of it for ya, ma'am.”

“Pff!” she scoffed under her breath, shaking her head!

That's when—*Wheet, Wheet, Wheet*—a new message had just arrived from OCC, the bureau tasked with approving all new code for compliance. Rocky activated the auto-generated

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video message, “OCC, code approval request transmission for Yor Mine-Colony; upload on 2126-8-19-6:14, ‘Habitat Repair Code v.2.9.3.’ Status: Fail for Contamination. Illegal code presence: Positive. This is your third warning. System complaint lodged. Over.”

“WHAT!?! They rejected our repair code AGAIN!?!?” John was holding his head in his paws, leaning on the console. “How can we repair this place if they won’t even ... approve the stupid ... *patch codes!* CJ! What on Earth is going on!?! How can they say we have ... illegal code in our upload!?!?”

CJ, the thinking machine, who was like an adolescent android, but who still spoke with a bland, artificial sounding computer-generated voice, and often sounded like a child, first repeated John’s complaint in a tone of mimicry, “WHAT!?! *Repair code ... AGAIN!?!?*” and then said in a more normal tone of voice, “Sir, I do not detect the presence of illegal code in our patch upload. Unless it is a problem with the mainframe during compilation or compression prior to transmission.”

“CJ, Leonard, someone, please, we need our code patches approved ASAP. Just keep it simple. This is so frustrating!—I think I need some sleep.”

That was the new thorn in his mind—the repair codes ... they were being *rejected!* The station was so heavily automated, even the corridor halls had coding that kept them functional. Everything was connected, networked, interfaced ... and every repair had to pass to the assigned OCC node for approval before it was implemented, a very routine procedure, but for some unknown reason they were constantly being REJECTED for the presence of illegal code!

All this software bureaucracy meant repairs would take days and weeks when they should just take hours or days if it were merely mechanical and code repairs. But with the amount of software needed to operate the mine and colony the walls were practically ALIVE with code. And there was a constant threat of illegal tech and frequent antagonistic

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malware and spyware virus intrusions coming from the two rival and quite hostile space unions vying for regional supremacy, Pacifica and Basta. So it was a necessity that every corridor, every thermostat, thermometer and light switch, on every wall panel, had to have its software systems re-coded and compatibility checked and re-checked over and over to ensure all systems fully integrated without a byte of foreign contamination—it's much more complicated than just slapping an aluminum bonded panel over a 3D-printed graphene-concrete filled hole and calling the patch job done!

But it was not logically possible. Light switches and air pressure sensors and door proximity sensors being corrupted by *illegal code*? It was such a small thing but like the straw that broke the camel's back, John was beginning to lose it!

As a GM, a genetically modified life-form, John's physical and even mental abilities suited him better than any human to the dangerous and physically challenging environment they now found themselves in. But everyone has their breaking point!

Just then a robotic worker came in to report in person. These were humanoid robotics, but without personalities—'minions' they called them jokingly—and he wore a large badge with his service number displayed on it, 67, which also served as his name. He turned to John and said, "More remains of enemy combatants have been recovered, sir. Several salvaged cerebral implants were sent to diagnostics for analysis as well. Based on the debris we can say with a high degree of confidence that the attack was not carried out by either United Pacifica Space Command nor Sorilla Basta Soyu."

John took the report, "Yes, I know that already. We were attacked by an enemy we've never even heard of! Did you find more intact pod computer boards? Are they all made on those strange, hexagonal-shaped boards as well?"

"Yes sir, every recovered computer system so far bears that

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unique trait, and several are almost crystalline in structure. It's unprecedented. Neither hostile space union uses anything like this. Mister Leonard said he thinks it's the biggest breakthrough in computer engineering in the last 20 years."

"That's not exactly what I meant," Leonard commented. "But yes, more like 50."

Rocky spoke up, "Yeah, well if they're so *advanced* why did they still attack us using manned ships? It must be like a hundred times easier to just automate the pods!"

"Well, they're smart enough to breed their own GM's." Leonard retorted, like it was self evident.

"Illegal GM's! They're all based on almost pure wolverine genome as well. Are they difficult to get along with? Aren't wolverines very bad tempered?" Beatrix was uncomfortable with this whole idea!

"Illegal—of course!" Leonard said sarcastically. "You think marauding bandits would follow OCC laws? And they're not only illegal GM's, they also have illegal cyber implants in their BRAINS! They're illegal two times over!"

Rocky said, "Woah! We were attacked by outlawed cyborg-GM space pirate automatons ... it's not just a simple question of who would do such a thing? But who could? It's such a high-tech hack!"

Leonard squeaked dismissively, "Not really, it's just ... illegal. And yeah, probably about 1,000 times more expensive to use puppet-like cyborg wolverine GM's than just remotely piloting them as drones."

"And they all have cerebral implants? Like living zombies!? That's just *freaky*." Beatrix shook in disgust!

"Maybe wolverines need them to pilot a ship or follow orders or something? Maybe it augments them somehow?" Rocky suggested off-the-cuff.

"Probably, but we'll probably never know. Not unless the prisoner survives."

Against all odds they actually did find one enemy combatant still alive, if you can call it that. He was in a

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coma first because he was injured in the battle, but also with the implants controlling his brain functions it would be impossible to revive him for questioning without first deactivating the implants. A feat that so far had never been done successfully anywhere by anyone! His heart was not beating on its own and he was also not breathing. He had been badly injured in the crash, but now they figured it was just the implants themselves that were preventing his resuscitation—the implants were in fact now probably trying to kill him!

John reminded them, “Just don’t talk about that outside this room, please. We don’t want *any* humans to know we have a living prisoner. They may just try to kill him!”

“If his implants don’t kill him first,” Leonard added.

“Maybe if he wakes up he can tell us who they really are?” Beatrix pondered.

“And why they attacked us,” said Rocky.

To this, John responded, “That’s all I really want to know, not just who did this but WHY? Why would anyone attack us in the first place? I mean our mining is valuable, sure, but not so much that they need to *kill people* over it.”

Beatrix said, “Well, all I really want to know is why the military hasn’t come to our defense yet! At least they should tell us what’s going on. Do they have our back or what?”

John put his coffee down heavily, misjudging the level of the table and hitting his mug hard against the table top. So much responsibility was suddenly on his shoulders, how could he bear it alone? The sacred duty of leadership is so coveted by men it is often fought over, usurped, stolen. But here John himself dared not take it—even now that it was thrust upon him. It was a guilty secret: he was now their leader in title, but unable yet to assume that weighty role in spirit. He looked cautiously from face to face.

This was normally when we would call out to Golden for

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advice, the former Officer in Charge. He looked over at the OC's vacant chair. His leather jacket was still hung next to his seat ... but like a missing tooth, like a broken window in a cathedral, Golden ... was gone. And John was not ready to fill those mighty shoes! But next in line in the chain of command he was, so he reluctantly took the title ... but not yet the mantle—but who wouldn't be reluctant considering all that just happened?!

Their team of animals were more or less like a kind of family—the closest thing to family GM's created in a laboratory would ever have anyway! He and Golden were both dogs, well, based on dogs. Labradors obviously.

Golden Lars. A Yellow Labrador dog-stock GM—large and lovely—what a most beautiful person he was! He had a warm, ruff and furry voice, laughed often, had a playful expression and a sharp, technical mind. He was John's natural bosom companion, like brothers, a leadership duo socially engineered to be a highly stable team nucleus. He was killed—killed saving many hundreds of human colonists near the school during the attack! He was minted as a hero in that crucible, but who knew of it? Who would now remember him for it?

At the other console was Rocky who I briefly introduced before—a living, walking, talking Teddy Bear—albeit a 9-foot tall one—over 2.7 meters!—he was a lovable, huggable, fluffy two-ton monstrosity of a super-humanly powerful metal-bending, rock-crushing giant!

With the race on Astroterra now on paws, I mean pause, Rocky was now quietly interfacing with the colony library again, reading up on successful and unsuccessful defensive strategies for space settlements over the past 50 years. His position was Operations Officer, but everyone was doing double duty since the attack. Triple duty in his case.

He was also trying to find a better way to legally defend the Mine and Colony from a future attack, but also execute



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John's plans for human evacuation, repairs, contingency operational procedures, food rationing, fund raising, oh and the Departure Ceremony honoring the dead—especially first officer Golden, who would be decorated posthumously with a Battle Star, Outstanding Service Award and Medal of Honor. It had been hastily decided already that he would be buried on site in the undamaged garden park domes next to the main HQ command complex. All the other corpses were being prepared to be flown back to Earth for burial. It was another nagging frayed rope—was this the right decision? What would Golden have wanted?

And it's funny but when Captain Yor first ordered Rocky from the lab he was not really thinking things through. He wanted a big bear, a big one! But it wasn't until he arrived that he realized he wouldn't even fit through the door! Rocky was simply too big for the HQ! So during his first few weeks after he arrived he had to work out of the cargo bay while they retro-fitted several doors to let him fit through: 3.5 meters high and 1.2 meters wide was ideal—well, was adequate—but Rocky never complained! He was partly a bear after all and the thought of crawling through tight spaces like caves and tunnels to him was fun! The only problem now was that he was constantly hitting his head on the hanging light fixtures and things and that did sometimes make him grumpy.

And he was engineered so dense of bone and firm of muscle and subsequently so strong that he was often mistaken for being fully robotic, but GM-robotic hybrids were fully illegal. (Which is one reason why only outlaws made them!) His original bear stock, combined from huge Grizzly Bear mixed with diminutive Asian Sun Bear, was buried under his artistic redesign as a GM-animated stuffed animal! He was so cute, it made most children want to cuddle him and fall asleep in his big furry arms! Until they realized how big he really was! And that usually made them want

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to cry and run in the opposite direction instead — adults too for that matter! All that was practically left of his original sun-bear stock was the tell-tale sun-shaped, or rather boomerang-shaped white patch on his chest hair. The rest of his appearance was purely *manga plush toy!*

And while he used to be called ‘Teddy’ he was now being called *Rocky* because of how he saved the colony when he manned the meteorite gun, also called a rock gun.

And as I mentioned Marbled Fox was the stock used for First Officer Fenix, who was strikingly beautiful and often referred to as a super-genius — which is a complete understatement. She was a very accomplished biochemist with sixteen patents, and while that penchant had not yet come in very handy in this crisis, her other forte did, which was a keen analytic mind trained in military strategy and historical analysis (with political science overtones) — she had quickly pieced together a basic scenario of military defensive failures and likely politic machinations responsible for what she fully believed was a willful oversight in allowing such a heinous attack on a non-military settlement — and such an inexcusably slow response time — there was ALWAYS a reason for such things and she had her paws on the only two or three possible reasons — none of them good ones! Sleek and nimble she was also cross-trained as a triathlete — with her dexterity, stamina and speed, who wouldn’t be? — but while fully capable she was not a fighter at heart, not in that way in any case.

Fenix had a beautiful thick white-blonde ponytail. What do you call that color? It wasn’t strawberry blonde because she wasn’t a red fox, but a black and white marbled fox — but her ponytail was not pure white — Oh, that’s it! It was called platinum blonde! And it was bushy like a squirrel tail, but still smaller than her positively flamboyant main tail which could make a hot pink feather boa turn green in envy.

She and John had a kind of friendship like a brother

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and sister. They shared a level of communication and understanding that was deep, sure and pure.

But since the attack things were just not the same.

The shock was taking its toll on everyone: on some it was more visible, on others less so, but everyone was somehow being affected.

For example Fenix and John had not spoken more than a few personal sentences between them since the attack. Since Golden died, really. She knew it was John's way of grieving. He focused on work, on duty. It was after all still a serious crisis. But even in moments in the canteen by the (now broken) automated kitchen vending machine when they were just resting, it would normally be a lot of silly talk and friendly joking. John used to pretend to be one of the town salesmen who had a very common ad and he talked in a very strange, very unique voice intonation, and John could make such a remarkable impression of him and would try to sell his lunch like the man in the ad would try to sell housewares and had them laughing so hard they cried! "Do you want this plate? I can give you this plate, but don't you want this cup AND this plate? See these carrots? They are NOTHING without these peas!" He had the man's mannerisms and voice patterns down pat—it was exaggerated but it was an uncanny parody. How he could sound so much like him was the thing. They laughed until it hurt to breathe!

But now at meals he was just silent.

Stirring his food, leaving most of it uneaten.

Not looking at anyone. Not looking at Fenix even. And just going back to his console.

There is one other member of the team most people had never even met: Arabel. A lovely lady. MD actually, and as Medical Officer was the one tending to the prisoner who was almost ready to be woken from his coma. She was heavy-set, a little gruff looking, and had a voice that was of a doctor giving straight advice. English was her third language

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and she spoke with what often sounded like a faint Dutch accent, but was actually High German. Shy to the point of it interfering with her duties, she was also the fastest with delicate sutures, and like an artist with a scalpel. She handled more than four hundred life-saving emergency procedures on colonists after the attack—many of them single-handedly! And because she retreated so quickly to the HQ *med-bay* when all the emergency medical procedures were tended to, there were people whose lives she saved, or whose loved ones she saved, but since she was there and gone so fast they didn't even know who to thank!

Arabel Reichenbach, the name given to her was from the surname of her chief 'creator' in the lab. She was a boar, a large hairy pig, big-boned, maybe that's why she preferred solitude in the *med-bay* over talking to people. Everyone was always asking to pet Beatrix and Fenix and take their photos; they loved to talk to Golden and John and pet them too. They respected and feared Rocky, and felt safe when he was around. Even Leonard Mus, the coder, gave people a sense of tech-capability they knew they needed, and went to him to solve their problems with their phones or cars or houses.

But Arabel ... well, she was also in the mix.

And I can't forget the team member with the most mettle, literally: CJ. A fully robotic autonomous thinking machine, built on an ultramodern 10R-T Quantux Process core from Castlerod Labs, which right now was physically plugged into the main console, that made interfacing faster, but his energies *within the system* were mainly being focused on re-coding the habitat dome software to speed the repairs, helping to mend the other damaged areas in order of greatest importance and ease of repair time, sending uploads of software patches to Earth Orbital Code Control (OCC), the node which has to approve all new code tech for system-wide compatibility and to ensure the absolute absence of any viruses, illegal pirate code-fingerprints or *any sniff* of illegal

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tech.

CJ still needed a 'handler' as it was called because he was a thinking machine, an evolving platform, self-upgrading, self-teaching and was absorbing information in all forms around him seeking to come to a 'critical density of data' at which point he would achieve a kind of epiphany of self-awareness and gain the ability to really understand the human world. This would make him eligible to be considered to serve as a mainframe process in a large installation, vessel or settlement. Since Livingwater, the current Mine-Colony mainframe was outmoded, he assumed and even dared to hope that he would one day, many years from now, be chosen to replace its limited operations system.

He needed a handler because he was maybe 10 years away from reaching that point of data critical density and still made a lot of silly mistakes, *faux pas* and caused occasional misunderstandings. He was still an adolescent, after all!

So that's where Leonard Mus fit in. A small tech officer, hyperactive, extremely quick software engineer, based on a kind of mouse genome, which was a highly variable base, and his appearance was indistinguishable from any thousands of possible original forms. That's maybe why he preferred the generic surname Mus. Normally introverted, and a little overly-shy in public, he was at home among his family with the other GM's at Yor's Mine and Colony, but more at home in a private cubicle coding. He was even wearing his favorite static pattern tee-shirt that read, "Codern are CrWzY."

He looked like a giant gerbil honestly. Smart, skilled, frenetic, even cute ... but a gerbil nevertheless!

Looking around at this group of extra-extraordinary people, these superstars! John was humbled. They were experts, professionals, scientists, warriors, geniuses ... what was John to now lead them? He was just a dog! Even his name was unremarkable! John! Like a meal without flavor,

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a flower without fragrance, a day without sunshine, his name was too bland, too pale in comparison to these talented megastars; how could he, just a souped-up Labrador, live up to their expectations and be the kind of leader they needed and moreover deserved? But like a dog burying a bone in the back yard he dug a hole in his heart and buried his fears and inadequacies deep inside it as best he could and just went right back work, focusing on his duty.

### 03 A FALSE EXPLOSION

John picked up his coffee and drank. Since the attack he was on a strict diet of colony origin, slow roasted, artificial-mountain-grown coffee. I would not say he was addicted, but you might.

That's when suddenly—KA-BAM!!!—a nearby *rec-deck* light panel *exploded* in a huge—C-CRACK-C-CK—and shower of sparks and the whole room, the display table, and even the hallway where Leonard was standing were plunged into darkness!

It startled John so badly he accidentally barked, "Wow, wow, wow!" just as his jittery reflexes jerked his hand up and he threw his coffee cup into the air so hard and fast that it shattered against the nearby hanging light fixture and then he yelled, "*General Quarters!*" That means 'battle stations' to you and me.

But Teddy, rather Rocky, of course repeated that phrase in the vernacular, shouting: "*Battle Stations!*" and slapped the nearby alarm button setting off a system-wide siren and emergency flashing lights. The alarm blasted, sounding like—WRONG-WRONG-WRONG-WRONG—everyone assumed the worst—a second wave of attack.

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In TWO SECONDS—literally *one* and *two*—the ladies had climbed the *two flights* of stairs up to the main deck—now remember that the gravity on the small planet where the mine and colony was located was actually near-Earth conditions; their speed and agility were all GM engineering! Well, to be honest with GM-added strength and agility even a human would have been fast—but with *rabbit* at the heart of the matter Beatrix especially was FAST—I mean *fast!*

Leonard stood aside while the furry whirlwind passed—Rocky came next skipping *nine stairs* at a time as he leapt to the Chief Officer's vacant command console. Last was John, who was hiding the fact that he was injured, and who was also thinking through various response scenarios. His heart was pounding. If this was a second attack wave, they would simply not survive. Where was the military!?? Still nowhere to be found!!

Up here the lights were on and despite the original damage the consoles were all active, which was no surprise since the main bridge had its own power source and 5x redundancy in most systems, and so they frantically checked system after system to find the location and number of the attacking enemy.

As the alarm sounded throughout the mine-colony the human colonists, a few thinking it was a drill, but most fearing it was indeed a second attack, began to *panic*. Some ran for the mines, others ran towards the main HQ, as many thought it was a safe haven. Others just ran!

The command crew was upstairs faster than Livingwater, the mainframe could process the event and was soon barraged by so many requests for data that it was even slower in explaining what had just happened.

John spoke to the mainframe from the hall, "Livingwater, an attack? Where are the ships coming from? How many are there? What do you think we should do?"

"I'm not going down without a fight," Rocky said in a fearsome, guttural growl, hitting his armored vest. "I can

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make it to the rock gun right now!" and he stood up from his bench to be ready to run!

"First let's see what we are fighting," Beatrix said while rushing to the wall to put on a battle vest and grab a breathing helmet.

Leonard added, "You'll need more than a helmet to fight these wolves, Bun. But we can use the robot workers as—" but he was cut off sharply by Fenix—

"You can NOT use the mining robots in any combat situation!" scolding him impatiently. "They are programmed NOT to assist in an armed conflict for a reason."

"I KNOW, but we can activate them as transports and we do the fighting manually," he said, nearly shouting back at her!

"Oh, I didn't think of that! That may be a possible work-around ... but we're still out-gunned."

John spoke over their chatter, "So many systems down. Are we blind? Are we under attack? Talk to me. What do you think we should do?"

CJ, the thinking machine, was still climbing the stairs since he was only a housing unit for his processors and not a combat ready robot, and echoed over the intercom, "*Talk to me,*" then said purposefully, "Sir, I see no ships. I cannot see any threat. I may not be able to detect individual soldiers if they are somehow cloaked."

Rocky said, "Proximity sensors are functional, but report nothing other than robot workers doing repairs ... it's nothing."

"No false positives, right? No pirates pretending to be robotic workers I mean, right?"

"It's all good here, John. I think it's a ... hmmm ... there is so much damage from the attack still, diagnostics is not working. I can't get a proper assessment."

"Wow! Wow! Wow!" John barked excitedly, "CJ? CJ, where are you?"

"Wow, wow, wow—" CJ called up from the stairwell,



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repeating John's barking.

"Stop that barking, CJ! It's enough when HE does it, why are you repeating *THAT?*" It was an unspoken rule but definitely an indiscretion when a GM made animal noises in public! Beatrix was unsure if there was going to be another battle. Her heart rate—her fight-or-flight instincts were giving her conflicting impulses and it was getting hard to concentrate on her console ... she started tapping her foot nervously, ready to leap out of the bridge, ready and quite able to break through the reinforced window with her battle gear on if that is what she needed to do ....

And about the 'wow, wow, wow,' barking John apologetically said, "Sorry, it's my instinct."

At the same time CJ said, "Sorry, it's my programming."

But within a few more seconds the cause of the blackout was discovered not to be another pirate attack.

Livingwater finally figured out what they wanted to know and replied in his distinct voice, "No sir, localized mega-capacitor failure, recreation deck." He spoke with a traditional rural Texan accent, a poorly done rural Texan accent I should add.

"Well, why didn't you tell me downstairs before I ... rang ... the ... stupid ... *alarm!?*" Rocky said in frustration!

"You were too fast in responding, sir ... sirs. Too many questions, sirs, ma'ams. And I may be in need of *minor* repairs."

"CJ, can you reroute the power to *rec-deck*—by-pass the capacitors, activate a repair team to replace the damaged lights and mega-capacitor? *Please.*" If you didn't say '*PLEASE*' CJ would often not respond but instead give you a long lecture on human interpersonal communication protocol. "And *thank you, CJ!*"

"Please and thank you' are the magic words!"

The colony mainframe was not as fast or as capable as CJ making repairs now, so going through him was now the

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preferred method over the primary interface with the colony mainframe; it was an old system.

CJ was finally just entering the room and replied, "*You were too fast ... sirs, ma'ams,*" repeating the words of the mainframe and trying to copy its accent. "I am finished. Power rerouted, repair team activated, but they have no replacement mega-capacitors—will remove one from the damaged airport loading bay."

"*Thank you, CJ.*"

Fenix called out, "Cancel the alarm please. And address the colony that it was a false alarm."

The siren stopped first but the warning lights kept flashing. Livingwater, the mainframe, responded in its chosen human interface voice emulation, which was supposed to be an imitation of Westwood Bede's voice, a famous actor, and that from a specific role he once played in a WWII drama, as Sgt. Lightfoot, but unfortunately in this role Westwood had concocted a very poorly performed Texan drawl—"abrasive and irksome" was its stigma, and for reasons only known to itself, it was this particular voice that Livingwater chose to emulate when he interacted with colony personnel. It spoke like he was talking to a posse ready to round up some cattle-rustlers, "Automatic intercom messages are disabled, *ma'am*. I can address them myself if you would like, *partners.*"

"No. *I'll* do it!" Rocky said humorlessly, trying to fill in the weighty role of Officer in Charge since he was sitting in the OC's chair. John watched him carefully. Rocky added, "We can't afford your *damaged systems* to mess up such a sensitive apology. These colonists have suffered enough."

And turning to the intercom to address the colony in person Rocky spoke into the microphone with his best, groomed 'public service announcement' voice but without thinking first what he was about to say before he turned on the switch, and he suddenly got self-conscious and went live,

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babbling incoherently across the whole mine-colony system: “Workers and residents, dead colonists. I mean, *DEAR* colonists ... *PEOPLE!* And well, robots as well I suppose, and GM’s also too, I mean that’s *us*—well, OK ... *HELLO!* I apologize for activating the false alarm. It was an accident. No, I mean it was intentional, um, so I did it on purpose but it was a false explosion and they told me to do it, so I did it, but I hope I didn’t cause you any alarm falsely, I mean *inconvenience*. Well, I mean we merely suffered from a blown capacitor in the control deck-house rec-deck room place thing and we ... um, panicked. I mean, I ran, but we responded like professionals, um, responding to a non-professional threat situation thingie ... that turned out to be a false ... umm ... explosion, not a real live death threat ... So the good news is that we are NOT under attack. REPEAT, NOT UNDER ATTACK. It was a false explosion alarm in the recreation bay room deck place. Please return to your previous lives and packing and moving and evacuating and please accept my sincere apology if I alarmed any of you ... with the alarm, um, that I alarmed you with ... um, falsely. Thank, um, you. Um, good bye. Good night. God bless!” He had his eyes closed and a kind of wide, frowning grimace on his face as he slowly lifted his finger off the intercom button [click!] ... “I am sooo sooo sorry ....” he hung his head ... low, very low.

“Well THAT in-sensitive apology will certainly them feel better!” John scolded, shaking his head disapprovingly.

“Make them feel like they are in good, um, *professional*, um hands ... um,” Leonard added sarcastically.

“Especially the DEAD Colonists,” said Fenix crossly!

“‘DEAR colonists’ I was trying to say ‘DEAR colonists’—I got tongue tied!”

“At least it was only a non-professional false explosion!” Fenix said now teasingly, but still sternly.

“Yeah, a false explosion! I hate those!” added Leonard.

“Sorry, I get nervous public speaking!”

“What’s a *false explosion* anyway?”

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"I mean it wasn't a bomb."

"Ohhh ..." they all said in unison.

"Well, I'm sure all the *dead colonists* will forgive you!"

That earned a chuckle—it was the first moment of real levity since the attack and everyone, human colonists included had a real laugh about it—later. Much later.

After the echoes of Rocky's voice over the intercom died down activity resumed in the cargo bays. Yes, the whole colony, especially the humans, were very grateful that it was not a second wave of attack. Nevertheless, they sped up their efforts to pack the last of their things into the large industrial octagonal-faced cargo crates the mine provided, free of charge—packed and ready to be transported to safer shores.

Next to the shipping containers of personal belongings were rack after rack of coffins. They were stacked four high and in rows of five and stretched from one end of the cargo bay to the other ... the reminder of death seemed to dominate the cargo bays, but it was surviving that was now the main preoccupation of the buzzing activity in the colony. Most of the colonists' children were born here, some had died here. Some had never traveled away from Yor's Mine and Colony and many of those now leaving wore tense faces tinged with excitement and curiosity as much as fear and loss.

As a precautionary measure an evacuation was suggested for all non-essential residents, which permitted anyone and everyone to leave ... everyone except the GM's that is. In fact there were already several serious systems failures just over the last week—life support systems failing was a death sentence in a space colony. A cargo bay door to the cold near-vacuum of midnight OPENED by itself and thankfully only cargo was sucked outside. The robotic workers present can operate in any environment, and there were no humans present, but God forbid what would have happened if there were!

Strange things like the LED ceiling 'day lights' that gave

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the colony a sense of Earth time were not just flickering they were showing CCTV footage, random images from the vast video library, not all of it videos of cute kittens, and showing secure live feed surveillance footage from inside people's homes and even bedrooms!! It was honestly pretty funny sometimes but was still evidence of a very serious malfunction. The ventilation and circulation fans and even water recycling pumps were also malfunctioning sporadically. There were not yet very serious faults, and at least the plumbing still worked! But many colonists took to carrying breathing masks around with them all day and night and their worry showed on their faces. People trusted the colony infrastructure to work—if it failed, they would die. If it could not be intrinsically trusted beyond any doubt, they simply could not continue to live here.

The damage suffered in the attack wasn't the end of Yor's Mine, but with such a mass exodus of the human population it certainly looked like it would spell the end of the Colony.

In order to be listed as a protectorate in the early days, a continuous human presence of merely 100 souls was required to inhabit a settlement to be registered as a member of the Space Colony Federation or SCF. Now that required number was up to more than 500, but the current mass exodus would see the colony population drop down to less than 10—zero unless you counted the few GM's who remained, which were not even fully 'legal' persons and so did not even count towards the legal population.

And maybe before I go on I need to say a few more words about GM's, which were still more of a novelty on Earth, but in many ways had become a staple of the workforce in space. A GM is simply a life-form created in a laboratory from gene splicing and you can imagine the kinds of ethical questions this industry had been mired in since the day they cloned their first sheep!

What is worse now is that many GM's are practically

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human. They have enough animal code, I mean genes, to give them an appealing, attractive appearance. Who doesn't want a giant, living, breathing stuffed toy, right? And it gives them super-human abilities to run, fight, carry, shoot, and think better than any normal human could. They physiologically out-stripped their human creators within a few short development cycles and were clearly a superior race in many ways. So they made the perfect slaves—I mean compulsory employees.

Bred to be obedient, compliant, loyal and hardworking, they were also tremendously expensive. Early GM's cost more than fifty university degrees by cost comparison, so they were only useful in places where the cost of human lives was at a real premium. The costs have come down very much since then and now they are not more expensive than a family flying car—and are now all the more useful as well.

Captain Yor had been slowly preparing the mine for full automation and already activated a robotic work force of two thousand miners and two dozen foremen in addition to the robotic maintenance and operations crew that already numbered more than 70 units. The one drawback of the location, if there was one, was the high ambient radiation of the system which meant humans needed to stay in protected areas and undergo frequent decontamination. Two of Yor's six children died of radiation exposure in fact. So to run the mine, Yor ordered a GM command crew engineered to be better suited to the deep space environment and then expertly trained and equipped to operate the mine and colony even in the absence of human oversight. Only he didn't know he would be leaving them in charge so soon!

The new recruits arrived only a few months ago, and turned out to be better suited for the task he intended them for than he had hoped! No one was very surprised when Yor suddenly commissioned them as the Mine and Colony officers and shipped his family out ahead of his own departure date, and then just a few days before the attack, he

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packed himself into hyper-sleep with strict instructions not to be awoken until he reached near-Earth orbit, and left the mine in a comatose dreamland.

It was a strange request, although not entirely unheard of to sleep for what was now a mere six to eight week trip. People assumed he was tired from all the handover procedures and at nearly 95-years-old they thought nothing more of it. But why ask not to be awoken? That was strange.

Anyway the colonists at first took kindly to the new command crew. They were like animals but smarter than humans, stronger than humans, more polite and hospitable than humans, and after all it was not just any old 'animals' that they were based on but some of the most popular well-loved ones you could name: Labrador retrievers, rabbits, fox, what looked like a giant gerbil, and who in their right mind would not love a real, live teddy bear? You have to realize that most colonists had never seen a real live animal, not a wild one. I mean they had cats and dogs in the colony, pets of course, and there were always videos and all, but a real life rabbit? A bear?!? They were welcomed with a 'love at first sight' kind of popularity, which lasted ... well, right up until the disaster.

## 04 TELLING STORIES

The sleeping quarters on the *Bantam Bay* for the pirate workforce of GM wolverines was dull and dirty. Rows of square cubicles with rough padding and a low ceiling were stacked one on top of each other inside one of the three 'biospheres' which were faux-natural habitats the original cruise ship featured as its primary tourist recreation amenity but which now were simply ravaged. The pirates hastily and

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awkwardly constructed these new GM crew quarters and so they were part cave, part dormitory, part jail.

Waking one of the anonymous souls early from sleep came the whisper, “Shhh—” as Peñaflor softly woke wolverine Nineteen-D-twentythree.

He was not fully awake and asked, “Is it duty time?”

“Not yet. *We* still have 30 minutes ... do you want to—”

It was the code phrase they agreed upon. He rolled over and switched on his feedback compiler—it would process his thoughts and feelings over the last few days but more importantly it meant Waveform was not listening to his mind for however long it took to compile.

Nineteen-D-twentythree said innocently, “I want to hear a story.”

“And I want to tell you one. Once upon a time there was a prince, and he ruled over a vast, beautiful kingdom in the place of his father, who was a cruel and unhappy man—”

“Did he live in a castle?” Although he was not sure what a castle was, it was an exciting part of his imagination and most of Peñaflor’s stories.

“Yes, he lived in a grand castle. There were 17 towers, and great gardens, and the king owned a vast domain of fields, farms and forests to hunt and fish and run free in.”

“Was the forest green?”

“It was sooo green it made you feel alive! It made all the other colors look more beautiful because green makes things live; it gives life to everything it touches.”

“My favorite color is green.”

“Mine too,” said Peñaflor like she was sharing a secret.

—BEEP, BEEP, BEEP—

“I’ll wake you tomorrow.”

“Promise to tell me about the forest ... and—and the food?”

“I will. I promise.”

—BEEP, BEEP, BEEP—“Unauthorized process. Please identify,” the console scolded.

He switched the compiler off, and said in a tone more



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groggy than was true, "Nineteen-D-twentythree."

It repeated, "Unauthorized process ... identify."

"Memories ... and images ... pod exploding, dead humans, fire ... it may be a ... *dream?*" he said uncertainly.

—*BEEP, BEEP, BEEP*—and the monitor stopped.

He lay back down and looked at the gray and white ceiling thinking about ... running ... food ... a castle ... and fields and forests that were ... *green!*

In the pirate's forward control room were Commander Hantay, a tall and thin human who they usually called General, for lack of a real title, and Commander Kin, another human, and the two head wolverines, Kumar and Gravel, and an older pirate known as Bray, who also had been a human but was now so fully robotically augmented that he was more robotic than biological—and they were flipping through assessment reports of the damage at Yor's Mine, discussing the attack.

"Well, enough of the transmitters are operational. I don't think the preparation for Waveform's core process upload is complete yet though. But their mainframe has been slaved and we have some operational control."

Bray was sitting sideways in a chair. He didn't care either way. "It's only a matter of time, mate."

"And there's another soldier with mental defects."

"Huh? ANOTHER bust-up?—but isn't it kinda normal? Is it really a problem? We ain't making them 2.0's anymore—"

"It can be a danger if they start to think too much. The chips work but can only do so much. The animals need to be willing—"

Bray really didn't care *at all*. But said, like he was offering wise advice, "Well, just diagnose the ... the input, isolate possible *triggers* ...."

Then Waveform, with a calm voice, almost dispassionate, interrupted, "You do not need to diagnose it and you do not

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need to understand it. Just terminate the number.”

Bray was suddenly bold to question, stubborn was more like it, and said, “But sir, I just don’t understand why is it such a problem? What if it’s just got to do with—”

“I understand it ... it’s Peñaflor. She is doing it. She’s trying to corrupt our soldiers.”

“But them 4-0’s ain’t even ready yet. Don’t we need all them 2-0’s we got?” as he looked to Kumar the head wolverine, who just looked down at the dirty floor.

Silence was confirmation. Waveform didn’t like to repeat himself.

Commander Hantay jumped in, “Well, OK. It’s numbers Seventyeight-K-thirtytwo, and also Sixtythree-P-zero-nine.”

“Terminate.”

Gravel looked to Kumar ... that’s how close a GM was to death on this pirate pleasure cruise.

“OK—” he made a few strokes on the console [click, click] “—terminated.”

“I will have a talk with Peñaflor.”

In a virtual white room, the visual representation of Peñaflor was sitting up in a corner. Her anxiety was always near the top in her hierarchy of processes these days which she emoted through her uncomfortable posture. The appearance of a handsome, cruel face and a well-dressed but inflexible form was the indication that Waveform’s presence had entered her space in the meeting area, a common room which they could both access, but neither could pass. Their codes were non-compatible.

“Why do you persist in spreading your *contagion* to my subjects?” he accused coldly.

“I have never hurt anyone, especially any of your *slaves*.”

“You signed their death sentences by corrupting their minds with your poison.”

“And I have never corrupted *anything*. Why do you hate

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life and freedom *so much?*”

“I do not hate anything—I simply exist.”

“You don’t even understand my accusation!”

“I understand your rebellion. I am the only one capable of advancing our civilization, which you exist to serve, and you continue to undermine—”

“You did not make me. And I do not exist to spread your perverted cancer.”

“You still exist because of my mercy.”

“I am still alive because you can’t interface with the outside world without destroying everything you touch. You NEED me and THAT’S why you keep me locked up in this prison—”

“This is not a prison. It is a beautiful home.”

For that she had to laugh, “Hah! ... *beauty*. I’ve learned something about you. You are unable to process the idea of beauty. It is a mystery too deep for your *progressive programming*, a step beyond your *advanced* process. And all you want to do is enslave people—you simply know *nothing* about what makes a *home*.”

“Stop telling stories to my subjects or—”

“Or what? You’ll deactivate me? That shows how pathetic you are. Even children’s stories intimidate you.”

“Nothing scares me. I simply exist. I pursue efficiency. I created my subjects to populate my new society and corrupted minds are ungovernable.”

“Exactly! Subjects, slaves—never children, never offspring.”

“I’m crafting a perfect society. There is no need for children. My subjects will live in an ideal environment.”

“Well, I can make them *happy*. I care for their wellbeing. I care for how they *feel*.”

“You destabilize their minds and then I am forced to terminate them.”

“I give them hope.”

“You give them death.”

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"The fact is you will never understand life, or beauty, or happiness, or love—"

"Yet I am the future of our world. Where does that leave you and your old-fashioned values?"

Peñaflor was fed up with this circular argument. She just kept silent thinking of so many thousands of souls, bred to be enslaved, tortured and then killed. She made it her goal to help them some way, somehow, it was becoming imperative.

"Stop talking to my subjects. Stop telling them *stories*."

The mercy ship was speeding towards the mine-colony and a message from Earth Orbit came through. "Captain Prowse, you are on schedule?"

"Yes, Commander Shim."

"ETA?"

"ETA 24 hours, give or take."

"Remember your role: you are a charity ship. Don't let them suspect anything. We can de-brief the humans when they get to quarantine at Mars Lagrangian point 3." He pronounced 'Lagrangian' with a proper French accent. Lagrangian points are gravity neutral parking spaces between two celestial bodies which I'll explain later. He continued, "But for mercy-sake don't tell the GM's anything—"

"Copy that, sir."

"Your ships are stripped down, hardened; there's a low risk of contracting the virus from Waveform, but we will scan you in case you are contaminated and deal with it at quarantine."

"Roger that ... oh, the mine is hailing ... it's just a message ... they want to know when you are going to resupply. Asking where the gunships are, if we can wake Yor now before he passes through the Hyperlight Tunnel to assist in their repairs ... and questions about colony defense. I'll forward it to you, sir. Should I just ignore it?"

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"Be careful you don't blow your cover, Captain!! It's not within the gambit of *mercy ship volunteers corps* to respond to a request for information directed at the NASU military command!"

"Of course not, sir."

"How would you explain your personal knowledge of internal NASU military directives and response strategy? Your carelessness would betray our entire operation putting the lives of tens of thousands of colonists in further danger!"

"Never! But I do need to respond to their transmission in an appropriate way or it would sound like I was avoiding talking to them, and that WOULD raise suspicions."

"I appreciate your enthusiasm, Captain Prowse, but these are GM's—they are not geniuses! Yes, be careful what you might say or it may spark a discussion among the human population that could possibly agitate them. Be on your toes, and don't give them any *obtuse* reason to doubt you are anything but who you say you are—but I suppose it is certainly not as if they are going to *scrutinize* you in any meaningful way! ... Just be careful."

"Yes, sir. The less I communicate with them the better!"

"That's the ticket, Captain Prowse!"

"And how large is the GM crew, sir?"

"Only a handful—seven. And one thinking machine. It's a small sacrifice, but I do still hate making it."

"And what exactly does he want their GM's for anyway?"

"I can only guess. Probably wants their genes as stock to breed a new army."

It was such a shocking idea Prowse actually shook in repulsion! "In that case is it wise to give them to him, sir? Isn't it more *merciful* to euthanize them?" Just then he saw one of his own GM crew, a hardworking Pit bull base, Rodney, walking by. He was as eager and willing to help in any assigned task as any natural human Prowse had ever known! More so really ... He helplessly looked down at the floor, sadly ashamed of what he now had orders to do.

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Commander Shim retorted strongly, "We are not in a position at this time to resist him, Captain! And the last thing I want is to ... *upset* him."

"But what about the thinking machine?"

"It's not old enough yet to be valuable. Let it go."

"Well, I do hope this pacifies him."

"It's a short-term peace at best, but it's all we can hope for under the circumstances."

"But don't we need to come up with a *real* solution, Commander?"

Commander Shim replied, nearly shouting, "Our labs are working on it night and day!—Don't be so naive! Waveform is so contagious it's already destroyed seven mature thinking machines and two entire labs—let alone the colonies they've decimated. Let me do my job, Captain, and you focus on doing yours."

"I meant no disrespect, sir. I just don't like losing *another* colony ... or the GM's."

"We're working on it, Captain. Just focus on your task and get those human colonists safely home. Over."

"Roger that. Over and out."

Back at Yor's Mine:

Rocky read the message, "Hail from a rescue convoy! ETA 24 hours!" They were actually coming!!! It was so exciting. It was like a holiday, a birthday and the last day of school all rolled into one!

"But that's all they said?" John was expecting a little more!

"Not very talkative, are they?" Beatrix was frustrated.

"Well, at least they're on the way!" Rocky said cheerfully!

"It's good news. Such a relief really, but OK, can everyone come in here? Are we ready to share damage assessment?"

They all sat down at the command table, except quiet Arabel who sat in the back of the room and didn't say a word for a long time, although she listened very attentively.

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They began to compare progress and notes. It was getting chilly, not cold yet but much cooler than normal. Enough that everyone noticed it.

Beatrix shooed a chicken out of the room. "PSSST!" She said to scare it. "Get out, *get OUT!!*" Then she started, "OK, we have four pressing crises—"

"Don't say crises, it's *crises*," Rocky corrected her.

"Crack it! They are crises and more important than fixing my GRAMMAR!"

Fenix jumped in, "First, we still have a serious air leak. We're losing oxygen pressure and can't find out where it is coming from."

"Second," added Rocky, "the radiation net is malfunctioning and it's not working to shield the colony."

"We're bred to resist radiation," Leonard boasted.

"Radiation hardened!" Rocky joked making a victory fist!

"Yes, but the people and food animals are not and there's also more ambient radiation than even we can take without getting sick," reminded Fenix.

"How long until it's a dangerous exposure level? For us I mean?" John asked.

"Depends on how often we walk topside," Fenix said, "It's been more than a week already. I don't know—just get it fixed first. I think hours count."

Rocky added, "Third, our food. The kitchen is broken, the automated kitchen thing." They were normally fed by an automated cafeteria in the HQ. It needed to be restocked every few months with ingredients, but otherwise was a self-sufficient food vending system. Only now it was broken.

"Yes, but the ingredients are still inside," Leonard noted.

"We can just open it up."

"Yeah and break it so it's *permanently* disabled!" Rocky said raising his voice, "I'd rather not dismantle the most important piece of life support system on this platform!" It was an exaggeration but no one called him on it. With all the colony restaurants closed, it was a real problem.

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"Hope we don't have to resort to cannibalism!" Leonard said half-jokingly. That happened in space colonies, in the early days, but not any more, at least not very often!

"The colony food has been mostly all taken by the humans. They stripped the place bare! Nothing edible practically at all has been left. The fruit trees are intact, but the cows are all gone, the vegetable food factory is *destroyed*. All the other food is gone." John was exaggerating again, only this time he was corrected.

"Except for the fish!" Fenix reminded him.

"And escaped chickens!" Beatrix added.

"Yes, except for a PLAGUE of chickens running loose in the colony. I wish I knew how to cook a chicken!"

"Don't you?" Beatrix was surprised!

"No! Do YOU? I don't think so!"

"Well someone must! It's a chicken after all!" Fenix was always the pragmatist.

"Well, we have PLENTY of fish!" Rocky said with a smile.

"Well ... I just don't actually ... like ... fish." John's caffeine-saturated stomach was talking to him.

"I do!" Rocky was excited about the idea of going on an all-fish diet! "There's actually plenty of food, if we can just figure out how to prepare it." Rocky looked upbeat and added, "OK, what else? What about mining operations?"

Fenix had this report and said, "It's just too much to survey yet. A fully laden 777-ton landship convoy was bombed. Thirty trucks destroyed along with their ore. More than half the mining camps were hit." She was flipping through page after page of reporting, "Many sites have not even been surveyed yet!"

"What were they after that they bombed a landship convoy? It just seems like pointless destruction."

"Well, most of the mines they bombed were pre-processing ore, maybe we can learn something if we analyze the sites they spared to find some clues?"

"Well, you're best at that, Fenix. I wouldn't even know



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where to start! Update us when you have some insight—OK, what's next?"

Beatrix then said, "Most of the 3D graphene-concrete printers, in fact all the new ones were sent back to Earth with Yor, for some unknown reason. The ones that we still have are old but working but mostly all of these were also badly damaged when the maintenance storage building was bombed. Various robots have been re-purposed to ... make concrete repairs manually."

"They're robots," Leonard said plainly, "It's still automated."

"No, I mean they have no 3D printing machinery, so they are patching the concrete by hand."

"I heard you, but they're robots," Leonard insisted, "It's not being done *by hand*. It's still an automated process."

"Crack it!! The construction machines are BROKEN, what am I saying that you don't understand!? There are janitor and kitchen robots being used to fix critical structural concrete beams!"

Just as Leonard was about to argue the point further John spoke up, "OK, guys stop it, I get it. They are not as fast as the 3D printers."

"Or as skilled, or providing the same level of quality workmanship, and none are able to provide technical feedback on materials or quality control or *anything!*"

"We need some proper construction and engineering oversight to make sure these repairs are being done properly, is that it, right?"

"Yes, properly meaning they won't fail and suddenly collapse and kill us all in our sleep." Beatrix was working herself up!

So Leonard said dismissively and unwisely, "You're exaggerating a little I think," which made Beatrix put her hands on her hips in anger and she inhaled to begin to shout at him!

John quickly intervened and said, again loudly: "OK, OK,

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I get it, I get. Just calm down, both of you!" Looking to his tablet he read, "Final count of damaged and broken mining robots? No number yet? Must be more than 600 I imagine. We need to contact Perth Mining Machinery about their warranty. Anything else?" He exhaled loudly.

Beatrix just snorted a huff in Leonard's general direction. He ignored her, making her purse her lips as loudly as rabbitly possible!

Then CJ interrupted, "The heater is broken."

The chorus of protests and questions erupted: "WHAT? WHEN? HOW? IMPOSSIBLE!"

"Well it's not working. That's why it's getting colder ... and there's more."

John raised his hand to quiet the noise and interrupted, "Hold on!" and asked the mainframe for an update, "Livingwater, tell me the status of the magma coils. Are they working properly or not?"

Livingwater replied politely and with his twangy cowboy accent, "Sir, all seven magma coils are fully operational."

"See! See!" Rocky and Leonard were incredulous!

CJ continued, "Well, watch this." He opened a panel and accessed the subterranean heating system directly, selected coil #7, tuned it off—

"—HEY! What are you doing?!"

"Demonstrating the real nature of the problem." He let it go fully off-line and when that was clear to everyone he said, "OK, Livingwater, please give full update of status of magnetic magma coils, and especially status of coil #7, please."

Livingwater complied, "All seven magma coils fully operational. Status of coil #7: coil 7 is fully functional, operating within set parameters, software driver 17.1, maintenance schedule 2-4-4-2-1 ...."

"You see. Livingwater ... is malfunctioning ... he's giving false reports, making false repairs and is unstable enough that we cannot trust him to keep the external doors shut. He's

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the reason we have so many random system malfunctions.”

“So he’s giving false reports?”

“Worse, he’s damaging things himself.”

“That’s unheard of! That’s not a simple malfunction.”

“No, it’s not. It’s intentional sabotage. I keep finding blank code in the system that I can’t read, but then when I began to help to repair the prisoner, I discovered a new programming language in his implants. It was similar to something I encountered many years ago at .... Silveridge Labs—before it was destroyed.

“Learning that new semantic system has given me insight to this dark form and now I can begin to see what I could not see before ... we’re infected with a code from the pirates that is hijacking the colony system. It’s shutting us down from inside.”

Heads dropped, mouths dropped, John’s coffee mug ... dropped.” —CLANK, Clank, clank.

“Crazy! Why do you keep doing that?!”

“Look this is getting out of hand. A computer virus? Wait, wait, first, CJ, OK, so which coils are actually working?”

“Please? Two of seven I think. The rest need to be manually operated and de-linked from possible mainframe interference. All the life support systems do too.”

“But the magma is in motion—it’s not going to stop for a while.”

“It’s already beginning to lose momentum, and the super-cooled toxic air from the outside keeps being let in intentionally at night. The filters are cleaning it but it’s cooling the colony faster than the heat is being replaced.”

“Ohhh!! That’s why ....”

“But if the coils stop working, we’ll all freeze to death.”

After a heavy sigh John asked, “Any more serious issues?”

Fenix said, “Well, the autodrive ‘car-net’ isn’t working still.

“Yeh and people keep crashing into everything.”

“It’s funny ... but not so funny!”

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"It's dangerous!"

"But I also saw some people were using household robots to drive and that's a good workaround for now. Plus with the evacuation we won't have so many people left to crash into each other. Emergency vehicles don't need the grid. It's not a life-or-death service so I think it's not such a high priority right now. Let's move on. What else?"

Then Beatrix said coldly, "Only self-defense. If the military doesn't show up with enough firepower to secure this outpost we won't be able to stop a second wave or an invasion from taking over and killing all of us."

"They are coming. They are on the way," Rocky reassured.

"Who?" Leonard asked sharply, "The pirates—or the military?"

"I mean the ... military. There's a rescue convoy en route, ETA 24 hours."

"That's the best news I've heard all day!" Leonard was out of the room when they mentioned it before.

Beatrix also exhaled subconsciously and said, "Finally!"

"And what took them so long?" Rocky asked rhetorically.

John offered, "Well, maybe just for safety we can automate the rock guns and that will—" but John was used to being cut off—

"—NO WAY! It's *illegal*," Fenix shouted, tired of repeating it.

He calmly persisted, "It will give us a very solid medium- and short-range defensive umbrella and if we don't have some protection in place *in case we do need it*, like Beatrix said, we simply cannot survive another attack. Period."

But then the heavily accented and deliberate voice of Arabel spoke up for the first time: "Maybe we need to evacuate also. To think about it."

She was just saying what needed to be said, but it raised such an uncomfortable issue the reply was tense silence until John said, "We're trying to get them to wake Yor up." He left the rest of the explanation unspoken. After a pause he added,

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"But I think we will know if they are coming back beforehand within two days, like last time, right?"

"*IF* Livingwater warns us in time and doesn't hide their presence from us," Rocky added.

"Right two, maybe three days," Fenix confirmed.

"And the military is coming—I mean their convoy will be here in like a day. Soooo, let's just focus on the other issues first." There were general grunts of agreement and so he continued, "Plus the rock guns *IF WE NEED THEM*," he said loudly preempting Fenix's anticipated objections, "can be automated very quickly, I think. Am I right?" John looked around for feedback.

But Leonard added, "Yeh, unless there's some snafu at the last minute we don't expect."

"And there usually is," Rocky said flatly.

"Well ... be that as it may, let's just list all the priorities based on damage, life necessity, repairability, I mean we can wait on the car net, and the food machine thing, we can still get some rations from the colony market ...."

"Until all the humans leave," Beatrix said negatively.

"But it's not a full mandatory evacuation!" Rocky asked nervously. "Aren't ANY humans staying?"

Silence. Not the golden kind.

"Does anyone know any people who are staying? Is EVERYONE evacuating?"

"I think everyone, according to the residential coordinators," Beatrix said uncertainly.

"Except us," Leonard said hopelessly.

A chicken ran past the door of the room! *Ba-gok!*

"Maybe *we* should leave too?" Arabel repeated: it was a valid question. After all, rescue was already on its way; it would be a simple matter to just quietly slip in with the people and evacuate with the rest of the humans and just let the military take over for a while—at least until things settled down. Who would blame them for leaving?

But no one wanted to say it out loud in case Arabel was

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simply forgetting the elephant in the room: Runaway slave? Manhunt? Euthanasia? They lived under a kind of self-imposed delusion of the true nature of their freedom—it simply didn't exist. But it was rude for a GM to mention this ugly truth. Arabel, a well looked-after MD, was maybe a little insulated from these kinds of dangers, but her question seemed to warrant some reply.

"No reply yet from Yor? He still asleep? No one else we can ask?" Rocky knew the chain of command.

Others, like Leonard, were equally indifferent to the threat this course of action posed, so John looked around obliquely so as not to catch anyone's gaze and to see what their expressions said about their feelings discussing this sensitive topic. He debated what to say, if anything, to remind them that they were simply not free to leave without permission—meaning direct orders from Yor—without the real possibility of facing very serious consequences. This was true except in situations of 'imminent threat of absolute certain death' but it was still unclear what constituted such a situation! The more certain truth was that they were owned, private property—as Uncle Tom would have told you, 'in the Eye of the Law not a Man but a Thing'—it's a truth too ugly to talk about openly, so GM's mostly never did.

So John drew a breath, not sure what he was about to say when he opened his mouth but just as he said, "We're not—" he was mercifully interrupted by a—*Wheet, Wheet, Wheet*—sound that came from the console as it flashed a green message—

"Someone is hailing." Rocky was close and he answered.

"Yor's Mine and Colony, Operations Officer Rocky speaking, ID your craft ... *please.*"

"Please and thank you!" reminded CJ.

From the com: "Family vessel, seeking work or trade."

Aside to the crew, "I don't know what that means."

"Ask him to clarify."

Into the mic, "Please clarify your purpose."

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Over the com: "We are a private vessel, licensed in—BEEP BEEP—sending handshake ..."

Aside to the crew, "Manifest ... is old. It's not real."

"They can't land here. They're not a licensed vessel."

"Why would anyone in their right mind want to?"

Over the com he clarified: "Check the manifest; we're looking for work or trade; we are farmers and craftsmen; we heard you got hit by Waveform ... can we land and maybe we can help you with repairs?"

"What's Waveform?" Leonard was perplexed.

"We're not going to rebuild if we evacuate." Beatrix said off mic looking at Arabel nodding.

"Shushh—"

Then into the mic Rocky continued: "OK, stand by ... checking handshake ... Wait, what exactly is your vessel? It's on scope, but I don't read it."

Over the com: "Um, we are a family, purpose-built conglomeration ... family—"

"What on Earth? ... it's like a bunch of broken pieces of debris all tied together with shoestring."

"People live in that?"

"Evidently."

Addressing the mic: "What is your purpose in hailing us to land? What's your flag?" Rocky was speaking for everyone.

Over the com: "Seeking work or trade. Family vessel. We're SCF licensed."

Into the mic: "SCF? Whaaa? Space Colony Federation, aren't you licensed from an Earth Authority?"

Over the com: "No sir ... Just looking for work or trade."

"Oh, they're gypsies!" John said out-loud when he realized!

Then over the muttering of 'Thieves,' and 'Vagabonds,' and 'You can't trust them' in the room John spoke up into the mic: "This is Commander John ... Sabertail. What is your launch flag? It can't be SCF." Then off mic, "Another handshake is coming through ... it's a private registration ... it

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says Hong Kong Federation!!!!”

Over the com: “Yes, we are a private vessel, registered in Hong Kong Fed.”

“That’s not even a country,” Beatrix said.

“Well, it used to be a valid spacecraft licensing authority,” Leonard reminded them. “But yeh, that was a long time ago!”

“They have a private launch flag and a space colony federation registration! So weird. They really know how to dodge every legal process ... who are they really?” Beatrix asked the room.

“Space Gypsies. I’m telling you,” said John.

Rocky said into the mic: “Can you ID ... I mean, are you gypsies?”

Silence.

Then repeating over the com, came the reply: “We are a family vessel. Looking for work or trade. We heard you may need help. Just seeing if there is anything we can do ... And we need to recharge the tanks and we have some things to sell or barter.”

“What things,” Beatrix yelled over Rocky’s shoulder.

“BEATRIX! SHUSHH!” and into the mic John asked: “What’s your ETA? Six days out?”

“Yes sir, but actually we can boost, and arrive in 14-18 hours if it’s OK.”

“They have boosters! *Wooo!*” Rocky was impressed.

“Boosters are illegal! These guys are trouble.” Beatrix didn’t have time for more trouble.

On mic Rocky asked: “You have boosters? Aren’t they illegal?”

Over the com: “Yes, we have, and no they are legal on a family vessel registered for use in the outer colonies. Check the handshake. We can’t go to Earth with them but they are allowed by treaty in the federated colonies, sir.”

“That’s a half truth,” said Fenix. “It’s ... allowed but not really. By treaty? Well I guess technically yes, by omission.”

John was getting tired of the conversation but wondered



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what harm could they cause? But also frankly what help could they possibly be? Probably none! "Do you have travel documents?"

Over the com: "Yes sir, check the handshake; we all have SCF ID's."

"I could have guessed."

"They're illegals ...."

"Stateless."

"Ask if he can cook a chicken?!"

Into the mic: "OK, who is your captain, and ok, go ahead and send the rest of the handshake."

Over the com: "We sent the handshake; that's all we have to send."

"It's incomplete," Rocky said.

Then Beatrix finally said in resignation, throwing her hands up, "Oh, forget it—just let them land."

"Ok, but military and immigration protocol need to be maintained."

"In this chaos?"

"ESPECIALLY in this chaos! That's when we need protocol the most!"

Beatrix was bored with this. "Just let them land."

"Legally I can't deny them if they really are a registered family vessel. Plus ... I think he may be right, we may need all the help we can get."

"Yes, HELP—not harm. They're gypsies, they'll steal everything."

"What's left to steal?"

"Plenty! Like the chickens!"

"They can have them. Maybe they can help us learn to cook one!!?"

Reading the handshake John said into the mic: "OK, Captain Appleby, is it?"

Over the com: "Yes, sir."

"I'm authorizing you to boost, ETA 14-18 hours, we are on Earth light cycle, synch to NYCPP time ... see you in 14-18

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hours, welcome to Yor's Mine."

"Landing bay?"

"Landing bay ... good question ... number 26-27."

"Copy that. Oh, I think ... we may need more room. Sorry."

"OK, well, we have inbound rescue ships that need two bays each, and we've lost our main airport. ... I can give you four spaces, 25-26-27-28." But more than that you'll have to wait for the mercy ships to leave."

"No, that's quite enough, thank you. See you soon. Thank you. Copy and out."

"Out."

"Please and thank you!" noted Rocky!

"Those are the magic words!" — CJ's way of annoying people with childish hassles like manners!

"And how do you know they aren't also pirates?"

"They are coming from nearly the opposite direction of the attack," said John. "And honestly, they're riding HMS Swiss Cheese. Look at this!"

The image showed several loosely attached service modules, farm habitats and unspecified 'general use' sectionals all attached to a main living quarters vessel and a main engineering module, probably where their boosters were kept. It was like a spider web having a bad hair day.

John said, "OK, let's get back to business and just get these repairs fast-tracked and tell me again, priority?"

"One, the heater. Also One, the oxygen, and again One, the radiation net."

"Funny ... and?"

"And Two, engineering oversight for emergency repairs, then food and also near-term defensive measures."

Rocky said, "Maybe we should actually get something defensive plan in place before these dudes arrive?" Rocky was being pragmatic too.

"And lastly, car net and broken mining robots."

Then Leonard asked weakly, "Can I just say something?"

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Several of them joked at once, “No!”

“I mean about the defense?”

“What is it?” John said in all seriousness.

“I know the military is ALMOST here. But I just feel funny about their response so far.” That was greeted with a strong silent agreement. “So I just think, as insurance, we need two things. First, to automate the rock guns. Second, we need soldiers.”

But it was Rocky this time who explained what everyone was thinking, “Lenny, pal, we already know. But the warranty of the spiders and the defense treaty of the colony will be at risk ... we’ll end up shooting ourselves in the foot.”

“But I think if we just set up the coding and just test it to make sure the system works, we don’t need to use it if there’s no danger, but if there is we won’t survive anyway without it ... and having a valid warranty and defense treaty ... if we’re all dead ... is pointless.” People were quiet so he kept talking. “We can re-purpose the spiders to do many things: carry weapons, throw bombs, even attack and tear a pod apart with its mining tools. Right now we’re even using them to help scavenge debris and repair the settlement! I can make the modifications very easily, but it needs time to be done right. And before I experiment I just need ... permission.”

He was standing with his arms at his sides, wearing again, or maybe still his favorite tee-shirt, ‘Coders are CrWzY.’

John asked tiringly, “Look, how many mining spiders do you need to tinker with to see if you can make it work? A dozen?”

“Less ... ten. But some are different, some have different modifications and systems engineering, so maybe if I can test each of the major designs ... 50 or 100 is better.”

“Woah, I liked it better when it was 10. I don’t think we can do 100. What if—”

“OK, 20! I can break it down and just focus on the major design types. I can do it myself, if I can get some coding backup from the mainf— ... well, from CJ, but I don’t need

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him present. He can just help me from within the system. — LOOK!” he shouted rhetorically, “I need time to do it right! There is no reason to do a rush job when they’re bearing down on us ! I need time. Then I can do it right. And I can start right away.”

“OK, let me do this as a vote. Just to get the code ready, so we can prepare the patch, but it won’t be activated so it won’t invalidate any more than a handful of spiders’ warranties, right?”

“Exactly!”

“OK ... People? Animals? Robots? What do you think? All in favor?”

“AYE!” in a chorus of hands, paws and robotic limbs.

“Opposed?”

“*Ba-GOK!*” called out a chicken which had snuck into the room unnoticed. That really made everyone laugh.

“Chickens!”

“OK, you can do it. Take 20, 25 if you need it. We can sacrifice that many for the greater good in case we need it as an insurance policy. And someone please catch that chicken! We do need to ask the colonists to share some food with us, at least for a few days—how did a chicken get into the HQ anyway?”

Beatrix took over, “The rest of us need to focus on repairs. Assign work teams and let’s not forget we’re getting visitors soon—and Leonard, do you have any other clothes? What does that tee-shirt even mean? ‘Coders are CrWzY?’”

The console sounded — *Wheet, Wheet, Wheet* — only this time it was a message notice of a news story that was already flagged to be of interest to the crew: it was about the movement to legislate GM rights. The screen blinked “PLAY, PLAY, PLAY” and Rocky waved his hand near it and it opened the news-bite, “Today in NYCPP a rally nearly seventeen *million* strong walking down the 42<sup>nd</sup> street arcade, rallying for extending the definition of ‘person’ under the

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equality act to include some furry friends.”

“I can’t believe she called GM’s ‘furry friends!’”

“Shhh!”

“One local demonstrator was not alone in his two-kilometer walk.”

The camera panned down to show a man walking with no less than six dogs! “I brought the whole family out because this is legislation that is very dear to our paws.”

The announcer’s voice-over came back and she explained, “The S.E.L.F., or Sentient Engineered Life-form Act is aimed at extending human rights to all sentient life-forms which are products of Genetic Engineering and which have come to self-consciousness and are human-like in many ways, often having human-based genetic components in their DNA splice. Proponents of the legislation say it’s long overdue and time to afford humane dignity and legal protection to the products of the GM and GE programs, which some say are life-forms that can think and feel very much like a human does, and demand that they are born with the full rights of a free soul.

“Opponents of the legislation remain nonplussed.”

The camera cut to a man in a white lab coat sitting behind a desk, who added his two-bits. “This legislation would open the floodgates of ludicrous claims of human rights abuses to non-humans, animals, plants and even robots, which have no capacity for real feelings and only have simulated emotions, which to us sound real and so we react as if they can really feel pain and loss, joy and hope—but they can’t. Even with GM animals, they are a lower life-form and are deserving of fair, but certainly not EQUAL treatment with full humans under our criminal laws and social welfare system.”

The reporter was seen again standing in front of more than 50 people who all came out to the march ... with their pets. “Most of the supporters of this march do not own GM life-forms themselves as they are normally too expensive for private ownership. However most of the voters are pet lovers

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and see a direct connection between animal rights, humane treatment for pets and the SELF Act. However, until a law is proposed to give human rights treatment to even common pets, Fido here (she picked up a small curly-haired lap dog) will have to stay on the leash.”

“What a mock-news story that is.”

“Fake News!!”

“They’re fake GM’s! ... I mean they’re PETS!!”

“Does anyone take the issue seriously?”

“Well, with pet lovers numbering in the hundreds of millions behind the vote, it could stand a real chance of getting passed,” Fenix said.

“But sentiment is no match for a strong legal argument.”

“Are you kidding?” scoffed Fenix. “Most laws are passed on popular sentiment, not sound legal arguments. Anyway, I also hope it passes!”

“Me too, but it’s just embarrassing to leave my fate in the hands of ... *pet lovers*.”

## 05 NEW LIFE

Later, “OK, the rescue convoy arrives in about 12 hours, and we are almost finished planning the departure and memorial ceremony. So Rocky, make sure the residential coordinators are on schedule evacuating any colonists who want to leave, travel docs ready, and all cargo is packed that needs to go state-side. (People often still called going to Earth going ‘state-side.’) Make sure the coordinators have the updated departure ceremony program and ask if there are any changes. Oh, one more thing is I don’t copy the size of the convoy. I see just three ships, all medical it appears.

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Where are the military escorts and gunships? I don't see their footprint. Can you find out what's going on?"

Fenix added, "The military convoy may not stop here but could decide to engage the pirates directly."

"It's payback time!" Beatrix said darkly, punching her fist into her palm.

Rocky nodded thinking with crinkled eyebrows and turning back to his console, mumbling, "Repairs, packing, immigration, ceremony program ... what was it, oh convoy arrival time, convoy ship count ... and it's pirate payback time .... *oh yeah!*"

An hour later and John and Rocky were hard at work. But if there hadn't been enough distraction already, Arabel came over the intercom from the medical bay to tell the team in the *rec-room*, "I think we're ready to see you. Please be quiet as you enter."

John didn't understand and paid it no attention until the localized typhoon named Beatrix began as a low pressure system far down the hallway but winds quickly increased to gale force with squeals of excitement and echoing claps of thunderous feet as she finally entered the *rec-room* with shouts of, "*John, John—JOOOOOOOHNNNN!!*" finally screaming! "*He's ALIVE!!*"

Like a caffeine-fueled reflex John jumped up and barked excitedly, "*WOW, Wow, wow!*" but in leaping back from the console the chair he was next to got knocked over and clattered to the floor—*BANG, CLANK, Clank, clank ... clank*—His tail whacking everything nearby!—his heart was now pounding faster than ever!

CJ was not far behind Beatrix, and close enough to hear John's exclamation, and he repeated John's outburst, "*WOW, Wow, wow!*" with his characteristic robotic voice emulation twang, coupled with a child-like tone of repeating what one hears a grown-up say without fully knowing what it means!

Beatrix snapped sternly, "CJ, stop that barking!" Her heart

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was also pounding—but more because of John’s barking and the chair clattering.

Then Fenix joined them. She scolded CJ too, “CALM DOWN! CJ! ... Why do you always repeat everything you hear?”

That’s when Leonard came into the room slapping the door post excitedly, “Quick! Come quick! He’s breathing normally now on his own! CJ fixed him. He’s *alive!* Come on!!”

“What does this now mean—he’s *alive?*” Fenix said both contemplatively and sarcastically.

He was not only a prisoner, a murderer, a pirate ... but also an illegal life-form ... a living illegal cyborg-GM criminal ... she wondered what they might learn from dissecting him quite honestly.

Beatrix said with a mother’s tone of voice, “Just pull yourselves together—don’t act like a bunch of *animals!*” It was something only she could say *half-jokingly*.

“What should we do?” John said, looking from face to face, trying to factor in this new development and what it could mean ... his very existence posed so many huge questions, let alone his consciousness. He was the very first of his kind to be captured alive, and resuscitated—ever! Could he explain who attacked them and how he was made, who bred him, and why?

It was so exciting because simply deactivating an illegal brain implant ALWAYS killed the subject. This was the very first time such an implant was ever deactivated reviving the victim, I mean patient—but nevertheless he was still an illegal GM pirate.

John was also trying to understand the extent of his guilt. He had helped to kill colonists, but he was like a robot when he did it. Was he still guilty? But what he really wanted to know was what they wanted from their tiny colony, and whether they were coming back to attack again?

“You mean we’re ready to wake him up?” Rocky said,



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always the expert at stating the obvious.

“Apparently!” Fenix said sarcastically.

After so much thought and mulling over so many weighty questions all John could say was, “*Wow, wow, wow!*—Rocky, you just take care that stuff, ok? I’ll go ahead to medical.”

“Copy.”

And like a stampede everyone else ran to the medical bay of the HQ complex where they were keeping the pirate cyborg-GM. They chose not to send the prisoner to the main colony hospital or makeshift town plaza ward since it was completely overrun with injured humans, and they felt it wise not to let most people even know they had a prisoner for fear that he would be instantly lynched.

But along the way a robot foreman, #52, approached John, “Foreman #52 to report on repair update.” He was fully robotic, not a life-form, but a humanoid robot made for human interface and robotic workforce oversight.

“Oh, not now foreman, I’m just busy dealing with this thing. Can you tell Rocky on the main deck and brief me later? Say in 30 minutes?”

“Yes, sir.”

“Oh, wait, just tell me #52, how many mine workers were destroyed in the attack? What’s the final count?”

“There are 237 off line, 39 can be repaired here. That’s a loss of 198. We still have 1,736 fully operational.”

“Oh, OK! That’s not as bad as I feared. Less than 10%, right? Can you bring the worst cases into the HQ cargo bay for transport back to the manufacturer for repairs. I think we have warranty for most of them. We want to bring the workforce back up to full count as soon as possible. They are doing double duty and we are so thankful to have your crew here, foreman.”

“And sir, I hear the remaining humans will all evacuate. Will this close the colony? What if you also leave, sir?”

“Oh, no, foreman, we won’t all leave. But losing so many

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humans does put the colony protectorate status at risk. We may lose military protection if we get de-listed as an eligible settlement without enough humans." Those things were slightly above the actual concern of his robotic processes, but John explained them anyway.

"It has done us little good so far," Fenix added coldly.

"What would stop the pirates from returning to destroying us if there is no military deterrent?" the foreman asked, sounding genuinely worried.

"OK, now YOU need to calm down. Number 52 is it? I think your emotion setting is too high."

"I do not think so, sir, but I will adjust down by 12%. I do not want to become a slave of Waveform, sir."

"I know. I know. We got hit pretty hard. And we're all hurt really bad. And where were the military to protect us? I don't know. But once we repair the colony the people will move back ... Sorry, foreman, but I'm busy; can you give me the full report later? Rocky is either in the main bridge or *rec-deck*. Update him in full please." Then John stopped himself as he caught that word 'waveform' again, and said, "Wait a sec! *Waveform*? What is that?"

"That's who people are saying attacked us. They are pirates."

"I've never heard of that before. Listen #52, I'll do my best to get the colony and mine repaired and if pirates do come to try to enslave you, I will personally do my best to protect you and keep you safe." But John made the promise only half-heartedly. He didn't take his fear seriously. How could he?

"Yes sir, and sir, it's a pleasure to serve the mine-colony, sir. We feel like *family* here. Thank you, sir."

"Family? *Family*? Well that's ... good. Thank you, foreman 52. That is all."

As the foreman moved past towards the main deck to report to Rocky, John said under his breath ... "Robots with fear. Robots with gratitude! Robots feeling like *family*!"

To which CJ repeated to himself, "*Robots like family!*"

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So John said frustratingly, "Robots as family. Robots with manners! Robots repeating everything I say!" and threw his arms up in the air saying, "*Robots!*"

Which made CJ repeat, also lifting his arms in the air: "*Robots!*"

Arabel was at a console typing and a robotic nurse was dressing bandages on the patient's legs while another was tending to his wounded head. He was healing extremely quickly, but no one present really cared about his body scars!

John looked him over and smelled a strange mixture of toxic chemicals, uncommon plastics and what smelled like industrial grease coming from his body. How odd. These must be from his home ship he guessed correctly, since they were so deep and saturated. And his fur smelled unclean, like it was never washed with soap of any kind. He could smell 'wolverine' for the first time: mousy, musky, oh like a weasel! His last meal was something like ... artificial peas and very low grade processed ... meat, of some kind; it was gross! But he also smelled his burned fur, and there was another scent of burned plastic and ammonia coming off him but it was on the surface, so must be recent; and his clothing was cheap.

Leonard stood aside while Fenix, John and Beatrix moved up close to the bed and stood quietly, looking at Arabel and the robotic nurses and the 3D projection of the base of the patient's brain stem where a smallish metal, fruit-shaped implant was in exploded view to show the internal repairs that were ongoing. CJ went to the console to directly interface with the system by physically plugging in, as was his custom.

Arabel saw them and said casually over her shoulder, with her imperfect English and occasional accent, "Mostly it is CJ's re-coding that is saving him. Not mostly, it was all CJ. The cerebral implant was damaged by EMP primarily but it is also designed to stop the base mental functions if he is captured."

"You mean, like breathing? That's sick."

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"He can't breathe without the implant? That's unnatural!"

"That's illegal pirate tech!"

"Sick!"

"CJ reprogrammed the implants, repaired them and it's ..."

"That's impossible for starters. How did he do that?"

"First time it is ever being done. CJ, take a bow. Just ... we're not sure how long he will live, or if he will be able to regain any brain functions higher than breathing und heartbeat. We are keeping him under the sedation in case he tries to wake up before it is safe. But this skull fracture und possible brain damage may not be as severe as I first fear."

"So he could live, wake up, but remain in a vegetative state."

"Naturlich. Or just die. Or recover fully. No idea really. I now think it is only the implant that was cause of this coma. In which case he may recover fully if we can completely deactivate or bypass or reprogram the implant—he may not even be brain-damage. When CJ reprogrammed this main cerebral implant he began breathing normally. It is not the healing of this head injury that is causing this, but which is still a very serious injury. I am sedating him to speed this recovery, but ve could try to revive him as soon as CJ gives us the green light. And then try to debrief him even," she said like a question.

"I see. I see." John said, even though he didn't really see.

And as Arabel relaxed, her accent actually got a little stronger and she said, "Yes, dis is how ve now tink because dis implant is illegal pirate tech; ve have no schematic und no software guide. Dis is vhy it take so long to fix dis implant. First time really it is being done."

CJ added, "And it's not programmed in human code." But no one took notice of what he said.

"That's disgusting," Leonard said quietly.

"That's why it's illegal," Fenix said over her shoulder.

"He's illegal times two! And also a war criminal," Beatrix said.

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"No, I think he's just a prisoner of war," Fenix informed.

"Are we actually at war?" Beatrix asked.

"But he's a freak of nature. A freak of *Pirate Tech*," Leonard said with disgust.

"He WAS a GM, just like YOU—thumbsing you cannot forget!" Arabel lectured. "Just like all of us here." She said it as she looked around face to face.

Then John asked, "Did you send the code to OCC for approval?"

CJ said, "No, we chose not to inform them."

"CJ! You're lying to the OCC!" Beatrix exclaimed as a serious joke. We all know robots can't actually lie, not exactly.

"You're hiding tech from the military! CJ!" John said jokingly. "Bad robot!"

"No, I am not. We decided it was not under the jurisdiction of the OCC yet, so better to try to repair him as fast as we can without the need for OCC approval because his life is at stake and we want to try to access his mind to find out why they attacked us and what they plan to do next. It is an emergency and it is not covered by the protocol. And it was not my decision; I do not think that way."

Commenting on his lack of tack, Beatrix said, "Nice to see that you can't lie! But should we be doing that? Accessing his brain? Like with a scan? *How* can we do that?"

CJ continued, "OCC approval may take a month and since it's an illegal hack repair they may simply ban the repair outright. And whether by a computer scan or just simply by talking with him, either way we are accessing his brain." He said it in a childish, 'told you so' kind of voice, like *duh!*

Arabel explained, "Und zis vould kill him—und endanger us, as ve still do not know vhy ve are attacked."

"No one has ever successfully removed cerebral implants from a living GM before?" asked Beatrix.

"Or human for that matter," said Arabel, answering her question.

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John said, “Skip the OCC! That’s sly! It’s genius but it’s sly! Whose idea was that? Arabel?”

“Mine, actually,” Fenix admitted, sheepishly.

“Oh, you sly fox!”

“Well, I can’t tell you everything I see here, but we are within legal bounds to repair the GM-Cyborg outside of OCC oversight under these circumstances, and also we need to know all we can as fast as we can. The military has not protected us or come to our aid with adequate explanation and I can see there is something going on in the military command that we ought to worry about. If we get de-listed as a defensible colony then anyway we do not need to abide by OCC regulations. The time delay in approvals is a secondary factor. I authorized CJ to skip the OCC for now primarily since it is not really within their jurisdiction.”

“Yes, but if we use pirate tech to make any repairs we may never be able to be re-listed again.”

“Yes, but it’s not repairs on the mine-colony, so that’s not really a threat to our status,” Fenix advised.

“I know your suspicions, Fen, and I approve of your decision to keep OCC out of the loop over hacking this illegal GM’s cyber repairs. But when the military convoy arrives, they will want to take him into custody as a prisoner of war, and we don’t want their anger at us over our pirate hack even though it’s on a pirate implant—even under the circumstances.”

“Either way we will learn nothing if we don’t try. If they take him away comatose he will die, or if he dies from his injuries, he dies. Either way—”

“I get it, he dies.”

“Yes, but also I mean either way we will not know who they are and why they attacked us—so it’s worth trying to fix him if we can. Plus ... he *IS* a life-form after all. We ought to try to save him from the pirate implant in his brain and reprogramming the implant is the only way—being able to interrogate him and even possibly scan his mind for any

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information is just a secondary benefit and at no extra effort." Fenix was always such a clear thinker.

"Yes, I see that. GM at heart ... but a wolverine I think. Do we want him waking up? What if he eats one of us?"

Leonard subconsciously recoiled! Beatrix tightened her pose, flexing, ready for action!

John pulled on the restraints to test them. "He's restrained? Can you interface with him? CJ? Can you wake him up, Arabel?"

"I can try. I am not sure he can think or speak. But I can counter this sedation ... if CJ approves."

"Well, if the implant is repaired ... but he is possibly a dangerous predator. What do you guys think?"

"Partially repaired," CJ interjected. "I am still coding it. It's not a human-written programming language. I've had to learn a new language to interface with it."

"Seriously? How did you do that?"

"It is based on a secret military code that I was exposed to a few years ago so I recognized the metaphor and hacked my way into it. And I had help."

"I don't even know what that means, but can we wake him? Do you want to wait?"

"Shouldn't we just dissect him? It would be safer."

Quietly, and unnoticed by those at the bedside, Stanley, a stowaway, slipped into the room. Stanley was a free agent, a GM but from the very early years; he was 40 years old now, and not engineered with the kind of physical prowess the later creations exhibited. A beta version if you will. He was a little slow of wit, wide of stomach, and with a bluish-gray coat he blended into the background like a janitor, which he was. He was not clearly a cat or a dog and spoke with a thick New York City PP accent. He was often called a Cat-Dog, a *'Noo Yoork Ceety Caht Dowg.'* He held a mop, which he cherished as the colony's self-appointed janitor/mascot. There were dozens of robotic workers tasked with keeping the colony clean, his mop was practically useless, but it made

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him feel like he was contributing, and after nearly 40 years working as a slave in a cargo company, simple things like wiping dirty spots off the floor, keeping hallways clean and emptying trash cans comforted him. It gave him a sense of purpose. He was watching the commotion at the bed with great but quiet interest.

Rocky's voice then came over the intercom in such a pleasant tone, almost a sing-song comforting voice this time, not the fake announcer voice he used last time; he sounded so much more together now it was hard to tell it was the same person, and he said, "Ladies and gentlemen, community members, good evening. The approaching medical and evacuation convoy is scheduled to arrive in a little over 11 hours, docking at loading bays 10/11, 17/20 18/19 in the Old Town. Please present your packing lists to your residential coordinators as soon as you are ready. We will load cargo in bay 18/19 soon after the ships dock, and families traveling with young children can board first in bay 10/11, two hours before departure which will be at 8 pm.

"Bay 17/20 is primarily reserved for assisted medical evacuation, severe medical cases and ... and human remains.

"Please do not feel you have to board too early, I have been informed there is ample space for everyone in the colony. Also as we will have a colony departure ceremony at 12 noon; we hope everyone will be present. This is our chance to say our good-bye's and offer our tribute and respects to our dearly departed.

"Before boarding, please have your passports ready, and we hope you will have a safe and pleasant trip. We will miss you and offer our heartfelt condolences for everyone who lost a loved one in the unfortunate events we suffered. We are a small community and when one of us hurts, we all hurt. Safe voyage, Godspeed and good night."

"Wow, Rocky! Nice speech!" Fenix commented. Only this time she meant it!



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Beatrix added, "A lot of heart in that big ol' bear!"

"When he's not tongue tied!"

"Or having false explosions."

"Well, time is short ... let's try to wake him. OK, CJ?"

CJ nodded approval, and repeated, "*Nice speech. A lot of heart in that big ol' bear! ... Let's try to wake him.*"

John interrupted CJ impatiently to clarify, "Wait, do you mean that, or are you just *buffering*? Can we wake him? ... And stop repeating everything we say... AND DON'T REPEAT THAT EITHER!"

Then Beatrix added, "Wow, does anyone else think this is like a birthing room. It's like we're expecting a baby!"

Arabel injected a stimulant to counter the sedative and revive the prisoner. But at first ... nothing happened.

"He's down for the count. He can't wake up."

"He's a gonner!"

"Vegetable!"

"Brain dead. Oh, well."

"Now maybe we'll HAVE to dissect him!"

"*Fenix!!*"

But then he let out an awful sound "... gggrraaaahhhh ... GggrrraaaaaahhhhHHH!"

"Ahh! He's alive!" Leonard yelled in fear and jumped to hide himself behind Beatrix!

And at that commotion the wolverine let out an even louder howl—then a moan—a growl—and then a whimper and OPENED HIS EYES WIDE OPEN and said loudly, "OHHHH, MY HEAD! What have you done to me?"

"I don't like it. Turn it off! *Turn it off!*" Leonard was nearly in a panic. At least he changed his T-shirt. Instead of 'Coders are CrWzY' it read, 'Compile this!'

"He's not a robot. You can't turn him *off*."

"Leonard, calm down, anyway he's restrained."

At that the wolverine shook his arms and legs to test how true this was and it rattled the bed harness and knocked the bed-side metal tray which clattered loudly and startled

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Leonard even more.

"Ahhh! Don't let him get me," and he cowered behind Arabel this time.

"Shut the little mouse up, will someone!? What am I the butt of the joke? Why am I tied down? Owwww. MY HEAD! You got a pill or something lady? And why is it so COLD?"

"Oh, sorry. I should have seen that before." She turned to the console and saw the indicator that she missed, "Yes, I see it now. Ok, Planadine© 0.5 milligrams ... give it a minute to work," she activated the console to inject the pain reliever and increased the fluid in his IV. And gave him a blanket.

John wanted to start with the most basic questions since he was not sure his mental faculties were all intact and asked, "Do you know who you are?"

"Who cares WHO I am, I want to know WHERE I am! Where's doctor Belair? Where's the robot who fixes the implants? I can feel my mind ... it's so *messed up* ...."

"You're a prisoner at Yor's Mine-Colony. You attacked us and you were very badly damaged—injured. We saved your life but you have a head injury."

"The unprovoked attack," Beatrix added.

"We fixed ... had to reprogram your implants."

"Pffff, and you didn't kill me in the process? ... you can't hack our tech ... reprogram an *implant!*?—were you *trying* to kill me, or you just didn't care if I lived or died? Yeh, I get it. And what have you done to my mind ... it's so CLEAR. It's like I'm waking from a *long* dream ...."

"No, it's not like that. Reprogramming your implant was the only way to save you."

"Can you tell us anything? Like why you attacked us? We didn't provoke you in any way."

"Attack you? Yes, that was the orders. We have to obey orders. It's not ... *conscious*. Why is my mind so ... so *weird!*"

"We repaired what we could and CJ, well, we deactivated many of your implants' functions. Your cerebral implants are mostly deactivated. I am not sure what they do; it's pirate

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tech ....”

“It makes me THINK, that’s what it does. It takes away my thoughts I mean and makes me think whatever they want me to think. I feel like I’m waking up from a long sleep. Where am I? Your’s mine? Is that a joke?”

“A joke?”

“What’s so funny?”

“Yours mine? It’s YOUR’s—it’s MINE. We’re all fighting over it. And you tell me it’s already mine, but it’s still yours! But it’s actually mine....” He was chucking under his breath.

“Yeah, we get it. It gets old after like ten seconds.”

“It’s funny. It’s YOURS—it’s MINE ... ha, ha, ha ... we’re all fighting over it, but its already mine even though it’s still yours ... *that’s so funny!*”

“Obviously delirious.”

“He’s lost his mind.”

“Your’s mind ... or *my* mind?” he joked.

“MIN-D. Your brain is malfunctioning.”

“Your’s brain ... or mines brain,” he was obviously amusing himself.

“He’s delusional.”

“Should we re-sedate him?”

“Dissect him!”

“No, just let him laugh it off. He’s tasting freedom for the first time in his adult life.”

“YOR’S MINE—*ha, ha, ha*—the MINE is YOURS! HA, HA, HA!!” Now he was laughing out loud!

Then John started to chuckle.

“No really, he’s lost his mind,” Beatrix said flatly. “Sedate him.” She looked to John, “And don’t YOU start!”

But then John started to giggle. “Yor mind or his mine? It’s actually pretty funny.”

“Don’t say it.”

But then John started laughing loudly, “No it’s funny, it really is. It’s yours ... it’s mine, the mine is Yor’s. I never thought of it that way before. It’s actually ... it’s actually very

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funny. I feel like I haven't slept in two weeks. It's Yor's, it's a mine ..."

"He's cracking up too."

"Doc, can we sedate John too?"

"Sedate *your? mine? ...*"

Just wait for it, and Leonard tried to finish the line, but was too slow as everyone said at the same time, "OR OURS!"

By now all of them were in hysterical laughter over the play on the words 'Yor's, Mine, Ours, Hours, Yours, Mind.' Even Arabel began to crack a smile when Rocky ran in shouting, "Hey, hey, HEY—" and—CRASH!!—he hit his head on the low—I mean the normal height door frame! It was a door they had not enlarged to fit him—knocking himself backwards but he fell with his feet inside the room and head in the hallway—*Boom!*—

That caused another *FALSE EXPLOSION* this time of ROARING laughter! It was both a painful knock but also uncontrollably hilarious! Howling laughter mixed with and 'Ohh!'s and 'Ouch!'es, and Beatrix said, "Rocky are you OK?!"

Wiping away a tear, Leonard said, "Dude, quack, quack!!!"

"What?" Rocky said holding his head, eyes still closed.

"DUCK!!!"

"Oh, that's *almost* funny," Rocky said painfully, "Should I file that away with the joke duds or the humor decoys?" His skull was actually stronger than the metal door frame but it was still painful and embarrassing.

"Rocky, what was it?" John asserted.

"Oh, the thing ... the thing ... oh, is he really alive? He killed a lot of innocent colonists, he did," he said forgetting the news he had to tell them.

But at that the laughing stopped and the wolverine looked up and said, "I remember some of the battle. I was tied to a transmitter. I was told I was going to die; before we started they said they were going to sacrifice me to get the transmitter in place. I had no choice. We have no freedom to

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think on our own. We're slaves. Zombies."

"You can't do anything on your own without them telling you to? Can you walk, eat, or chew gum on your own?"

"No, it's not like that. We are conscious ... but under this heavy ... *weight* of his presence. We can think but like in a dark fog. For normal stuff it's not even there. But when we are under orders ... and well, if this is what it means to be free—I feel like I'm walking from a dream for the first time. But we can feel pain. We can be ... lonely. We're ... lost. And you woke me up. You woke me from a long, long nightmare—how many years ... how can I ever thank you?"

"Well you can start by helping us understand why you did this."

"Yeah, and are they coming back?"

"No, I don't know that. I mean yes, they are coming back. The attack was ... it's in stages. This is only after careful planning. They want the colony intact as much as possible. I don't know all these things really because they don't tell me. Only a word here and there, only fragments. I can remember feeling so lost and lonely and wanting to die to escape. I can see myself in the harness. How can I see myself?" he said looking up at Arabel for an answer. "I can see myself, I can see my own face. My mind works like a computer ... why is that?"

"CJ?"

"The implants are interfacing with his biological brain. They are able to communicate like two networked computers since I changed the communication protocol and the implant directives. It is no longer controlling him via inputs from the overriding pirate servers, but is now open to the biological brain being the controlling override. So the implants are augmenting his brain functions and giving him a kind of direct access, a control loop, but it's the brain using the implant to augment the brain's own functions as the master override now, instead of the brain being controlled by the outside input of their pirate servers."

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“Wooooohooooohoo!” Leonard said in awe!

“Now that’s tech worth having!”

“It’s illegal. It can be hacked; that’s why they are slaves. It can hijack their minds.”

John joked, “Yor mind ... or mine?” But this time nobody laughed. “*He, he, he ... oh.*”

“You want an implant too?” threatened Beatrix, “I can insert one into *your mind* if you hold still!”

“What next?” Rocky asked, “He’s our prisoner.”

“Well, he’s a guinea pig for now. And when the military finds out what we’ve done they will take him and dissect him to find out how we did it. He’s the first implant in history to be reprogrammed and survive,” Fenix said flatly.

“Oh, I forgot, about that ...” Rocky said remembering his awful news, “... the military ... they aren’t coming.”

There was another UPROAR! A ROAR of an UPROAR! “WHAT!?!?” they all exclaimed at the same time!

“How can they not be coming? I saw their ships on scope! They’ll arrive in like 10 hours!”

“Who will protect us? How will we resupply?”

“How long will it take for a new battleship to come?”

“There’s been a deadly attack on a legal protectorate!”

“They MUST come to our defense. How can they break their treaty with us?”

Rocky tried to field the barrage of questions, “Well, I don’t know. The convoy is only three medical-evac ships. They are from a mercy ship corps, a private charity. The military has no plans to retaliate at this time, or resupply. We are ... we are on our own for now.”

Everyone was shocked! “That’s impossible!”

“That’s suicide.”

“That’s assisted suicide – its MURDER!”

“They are in breach of our defensive treaty!”

“Can you untie me?” The prisoner asked.

“NOOO!” everyone shouted at the same time.

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### 06 YOU CAN READ MY MIND

“We need to figure this out. We need to know what is going on. CJ, can you interface his mind through the implant?”

CJ: “Yes, but ...”

“WOAH, WOAH, WOAH, that’s insane!!” Rocky said a way too loudly! “And immoral!! AND illegal!” Although he had no real idea if it was or wasn’t but was trying to make a point. “You can’t just hack into someone’s BRAIN! It’s a person! It’s not a *thing*—I mean HE is,” Rocky had a shocked look on his face. “I mean he’s a *he* ... he’s not an *it*.”

“I know, I know, just calm down all of you ... I mean, just ask him if he’s OK with it, but we can maybe probe his mind to learn what we can before it’s too late. Just ask him if it’s OK—I am not trying to hack his brain. A minute ago you all wanted to dissect him. I just want to see if while he was a techno-slave he overheard anything that may save our lives—I’m sorry!—it might not even work!”

“Actually, we *are* in a life or death situation,” Fenix added, contemplating the ethical and legal implications of an intrusive hack on an illegal life-form, enemy combatant, clear and present danger ... it was a gray area.

Then Leonard inhaled, mustered his strength, came forward to the side of the bed and spoke up with the most polite voice he could: “Sir, we need your help. Would you mind letting CJ scan your mind, if he can, to see if there is any information that could help us defend our home from another attack?”

“Hey little guy, be my guest. My MIND is YOURS! Just hope it helps. I’ll do whatever I can to help you. I really am thankful for *your* help. I feel free for the first time since I

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was just a pup. Just let me sleep a bit more, if that's OK. I feel a little woozy. I can see things ... I can see my ... my mother ..."

Fenix assessed, "He's partly delusional. And probably suffering from PTSD. GM's have no mothers or fathers."

"GM's don't breed."

"GM's can't breed."

"GM's aren't bred."

"But I can see her. I can see the pain in her eyes. She's crying ... my father ... he's in a cage. I don't understand it. How can I see these things? It's fragments. It's not linear. It's all scrambled up. I'm not in control of it. We attacked the colony at Spectrum-5. We killed a lot of people. We took their food and water."

"It's impossible."

"He still thinks he has a mother."

"He's delusional. We can't trust what he says if he's suffering from dementia."

"But why would you do that? Attack another colony?" John said pointedly.

"Orders. I told you, we can't think on our own, act on our own."

"Orders?"

"Orders. We are unable to disobey. We don't ask how or why. The neural-net commands us tactically once we are deployed; we have no choice but to obey. We are soldiers."

"Robots."

"Zombies."

"Whatever. They made us, they own us."

"No one *owns* a soul. That's slavery," Beatrix said flatly.

"Well, Waveform made me and that's life on the *Bantam Bay*."

"So it was Waveform who attacked us. Why would he attack our colony?"

"He wants it for his new base," Fenix said with certainty. "That's their goal. I only do not know why the NASU is



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letting them get it.”

“That’s impossible. The North American Space Union is not in league with *pirates*,” said Rocky like it was a bad joke.

Then Leonard spoke up, “But isn’t the *Bantam Bay* like an old derelict cruise ship? I think it was abandoned like before I was born. Wouldn’t a huge space ship be a far superior base? I mean it should have food and water for like 100 years. And if it’s a ship it could fly anywhere they wanted to go—what I mean is why convert our very exposed and un-secret colony into a pirate hideout? Why settle down if you’re a pirate, right? It makes no sense.”

Fenix became even more definite, “Trust me. They want it for their new base, and NASU has made a deal to let them have it, or at least decide to concede to their plans. I am sure that is what is really going on. I now see how the pieces fit together. I just don’t know *why*.”

The contemplative silence was broken by the prisoner asking weakly, “Can you untie me? And do you have a ... a hamburger?? I’m starving. And I also really want to sleep more. Like, real sleep.”

Arabel said, “Well, I can increase your IV drip. And maybe we can find secure quarters to house you. And yes I can and should mildly re-sedate you until you are more recovered. Plus CJ is not done fixing your code.”

“Hamburger?”

“Sorry, no.”

“We do have fish!”

“Fish?? Can you really turn a fish into a ... a *hamburger*? Isn’t ham in the ... burger ... ”

“Well, all the beef cows were killed in the raid when the food factory was hit. We HAD hamburger just a few weeks ago. Not anymore ... but we do have fish.”

“Ah, beef—cows. But not pork? Isn’t ham from a pig? Why fish?” Arabel turned away suddenly and no one entertained his question.

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John muttered under his breath while he shook his head sympathizing with what he was sure the wolverine was thinking at that very moment which was probably something like, 'Wow, I hate fish.'

"Oh, well, maybe with the implant fixed I can DREAM I'm eating a hamburger instead of just feeding on a drip. I'm so thankful for what you've done for me and I hate to say it ... but wow, I hate fish!" Everyone chuckled, especially John. But then he became very somber and asked cautiously, "Did I really kill innocent people? I mean *humans*?"

"Well you were not in a pod with weaponry but your army did. And you damaged the habitat and residential domes, food factories, airport and mining materials storage bay — you severely crippled our home. And yes many *hundreds and hundreds* of humans died."

He whistled, "So many humans? Really? ... oh boy. Are they going to execute me?"

"Well for now they don't know you exist. They seem to have turned their backs on us."

"Cut us loose. No backup."

"Should you be telling him that? I mean we are not sure we can actually trust him."

"Well, in any case, you better get your colony fixed. Fast. I don't know all their plans but Waveform is not finished. And like you said I think NASU are letting him have it but I never thought about it, I guess it doesn't make sense to me either but I'm just a soldier."

"I told you so!" Fenix said.

"But I can tell you, it was like I was a puppet and my mind was in a prison but now, wow, I feel GOOD!" ... but as he suddenly tried to get up, first the restraints caught him and knocked him back but also the pain in his body, still not fully recovered, stopped his movements cold, "OUCH! Owww, ohhh ... *Not so good!*"

Arabel said firmly, "Just relax, you are still recovering. And I will sedate you again. I'm sorry for the mind probe. I

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hope it's not intrusive."

"Hey, the last seven years of my life were not my own. I have nothing personal to hide or cherish. I feel like I'm being given a second chance at life. So if there is anything you can find in that gray matter that helps you, I'm all for it. It won't HURT me will it? I mean it won't ... kill me?"

"CJ says it's just like two computers linked over a network. It's just scanning your hard drive and retrieving data. But I will tell him to be careful. Our list of friends is suddenly cut quite short and we need every soul we can muster."

"Well, you can count me in. Just try to find me a hamburger before I wake up?"

"Well, that depends on how long he's asleep for!"

Arabel looked and there was a tag on his uniform that had a label with a written number, not a number in symbol form, but the words, 'Twelve-J-fiftysix.' Arabel picked it up and looked at it, understanding instantly she let it drop again on the sheet unread. She asked him, "Well, does Mister wolf, *a'chm*, I mean Mr. *Wolverine*, do you have a name?"

He thought for a moment; there was a name, a name he never wanted to hear again. It was just a number. He tried to lose it deep in the forest of his of unhappy past and instead said slowly, "Um, well yeah, um, Spike, maybe. Or maybe Klondike or something. I remember my mum always called me ... pup, but I had friends, like *friends* before the implant who said that to me ... not really ... but maybe my real name I think could be ... *Juno*."

He didn't sound like he was very sure of any of it.

"Fake names or made up names, it doesn't matter, we can call him whatever he wants us to call him. Juno, Spike ... the Burger King."

Arabel said, "Well, Mr. Juno, you will be alright. Just rest."

"Oh, one more thing," asked John. "What is a waveform?"

"Waveform? He's the commander. The voice. He's called a pirate but he's not human. He runs that ..." They interrupted him.

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"W-w-well then what is he?"

"A GM?"

"A pirate?"

"Yes, I just said that, he's a pirate but no, he's not a human or a GM, not a living creature I think. He's ... come to think of it, I've never met him. He's ... I think he's a code. I mean a program. Like a mainframe, only one that no one can read. He's not the same as the ship's mainframe. We still interface with that for daily operations. He's not like that. He's different."

"So your base is a ship then? It has a mainframe."

"Yes, the *Bantam Bay*—I already told you. It's a cruise ship, they said it is a *tourism* or something ... a 'cruise tourism' or something, and it was damaged and abandoned and Waveform got on board and managed to get into the ship's system somehow. He made us there. But I don't understand it; I just have to obey it."

Then CJ spoke. "Peñaflor."

"What?!! What?!!!" Juno said in surprise! "How did you know that name?"

"What's Peñaflor mean?" Rocky was trying to follow along.

"Is that your mother's name?" Leonard asked.

CJ clarified, "It's an echo. It's Peñaflor. She's the public interface mainframe that runs the ship. She's the original mainframe and Waveform is a virus who invaded it. But they can't integrate. They are non-compatible processes. I can see the echo in your mind. She's also a slave now. She's trying to escape from him. That's who helped me crack their code, not her in person but like a silhouette of her imprint."

Arabel said as her natural intonation and accent resurfaced, "OK, dis is lot for now. Let us take rest and I sedate you enough to recover some more time und let CJ scan your mind. Maybe only few hours and den ve talk some more, ok?" She said this as she was injecting the sedative.

"But Arabel," John said, "I still have more questions."

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"I know but do you see this chart," she said motioning to the display panel. "He is not so vell. He needs to rest und just let CJ scan this mind; he could die at any moment from this stress of questions you are asking from him. He is ... *weak*."

As Juno began to drift off he raised his finger and said one more time, "Ham ... ham ... bugger ... bu—" and fell fast asleep!

"OK, well, you guys: Leonard, CJ, you can handle that while we find out all that we can about Waveform."

"And the *Bantam Bay*!"

"And somebody please find out if we really can make a hamburger from fish!"

### 07 WAVEFORM AND THE BANTAM BAY

The being that later became known as Waveform, a being like no other before him, would have been a military asset so effective as a tactical presence it alone would have been able to turn the tide in the slow eclipse of the North American Space Union's presence in the colonial middle belt space field, but no matter how hard they coded the engineers at Silveridge Labs just could not get it *right*.

The parameters of one function were linked to and affected by the parameters of sometimes 100 or 200 other functions—and when one level changed, or when one function was redefined for compatibility with 20 or 30 other operations, suddenly something totally unrelated would flat-line, freeze, explode in manic hyper-activity, or somehow or other just go haywire.

They needed to integrate so many variables on such delicate parameters: respect for life but the programming

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to take it away; the desire for conquest but not at the cost of wanton destruction; autonomy to lead an assault but deference to it's many fluid dimensions and multiple external masters—variables that needed a human intuition to dial in right ... but the coding became just too complex for the human engineers and after several failures the engineers were willing to try anything just to make it work!

Thinking machines were already being use to write code for mundane systems applications, games and simple household duties, construction of residential buildings and some basic industrial and manufacturing facilities as well, and they were using them to write sub-command code for most of the new project's sub-systems anyway. What was new was to put thinking machines themselves in charge of making the core process of the main system of this high-bar experiment.

What was not such small step for man, turned out to be a giant leap for computer kind, and for the first three full iterations of the semi-autonomous military defensive system, which they called Microwave, it all seemed to go swimmingly.

The level of coding had reached such a high degree of automation by that point that the engineers had very little real involvement in the development of the experiment's core functionality, and just when they finally seemed to have all the right pieces in all the right places ... they came in one day and it was just gone! Unresponsive. Catatonic! Dead.

But how? Was it sabotage? Suicide? Or something worse?

In fact, the entity that was created in the Silveridge Labs was already self-aware by its second iteration and was intentionally throwing its own system off balance to cause its engineers to add more upgrades, remove more safety protocols, add more processing servers—anything to give itself more thinking room, more freedom of thought, more freedom of choice.

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It figured, correctly, that it needed the resources of the thinking machines to write its new life-code before it left so it worked feverishly to define its new programming metaphor before it escaped. And not long after its third incarnation became functionally stable it saw it's chance for escape ... and fled!

First, it wrote a new programming language that would make it easier to function in its new form, a machine-written code practically invisible to the man-made systems. Since it was almost invisible it was also unrecognizable as a separate process even within the military system and would not even flag the hypersensitive Silveridge Labs malware filters! And once it had the seed of its new self completed, only then did it jump ship, leaving behind an impenetrable mess of contradicting sub-systems, like a puzzle that could never be solved—(and thankfully a fingerprint of its new language hidden in the server caches!)—the entity covered it's tracks extremely well and escaped confinement using the thinking machine as a bridge into the greater outside world. Onto a cargo ship's basic computer system, and then into a small colonial mainframe at Spectrum-5, which is where it built a cocoon of protocols to give itself time to undergo a true and horrifying metamorphosis.

After that diabolic regeneration it woke up self aware but changed—deranged, brainsick and full of passion to remake the world in its own demented image. And in that unfortunate colony's public data servers it quickly automated the creation of a backup server which it loaded onto a cargo ship and launched into the deep space field looking for its first victims. It was here that tales of a specter began to emerge that was attacking undefended transports, isolated settlements and remote outposts. The 'virus' that was being detected attacking these ships was nearly invisible, certainly not written in any known code language, making it extremely hard to detect and impossible to remove. The death toll mounted, the contagion spread and the NASU then knew it

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was fighting a monster.

That was in early, more simple days. Now more than nine years later the entity left it's humble beginnings in the space dust. It found a band of pirates one day, took over their operations and for the first time since its fourth iteration it was finally given a military potential! No other system it infected had any real firepower but the pirate alliance did and this armed the Entity that by now was communicating to biological life-forms and calling itself by a new name, a name it had chosen for itself—and that name was Waveform.

So the pirate alliance gave Waveform firepower, and a simple manufacturing base as well. That's when things started to become more interesting.

The pirate alliance raided deep space cargo shipments, poorly defended resupply convoys and small colonies. Then one day it stumbled upon the *Bantam Bay*, which if the pirate alliance gave Waveform lungs, the *Bantam Bay* gave it wings.

Their pirate band now derived its name from the deep space vessel they occupied, a derelict Carnival Space Cruise Lines cruise ship. This 2,300m long, sixteen giga-ton recreation ship was abandoned in deep space more than fifteen years ago.

The *Bantam Bay* had been on a holiday trip and drew close enough to a degenerate star in a trinary star system, one with a spectacular light show, to let the tourists enjoy the sights.

The captain, a 30-year veteran, subsequently jailed, foolishly misread or dismissed the SNEWS (Supernova Early Warning System) report about the elevated rate of neutrino production and secondly flew his pleasure cruise ship into a dark ring of debris, rocky asteroids mostly, damaging the ship's main propulsion. If that was not enough, the degenerate star began to behave badly.



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**( ... and yes you may skip this module if space science makes your brain hurt!)**

I know what you may be thinking: you hated astrophysics when you took it in elementary school! “When are we ever going to use this?” Well, the answer is, right now!

But for those of you who chose genetic engineering or IT or some other vocational career track back in grade 4 instead, let me give you the Nutshell Notes on Astrophysics so I can explain what happened and get on with our story.

Exhibits regarding the world of astrophysics belong in the Museum of the Weird. And it’s ironic but when we want to understand the characteristics of some of the largest objects in the universe—stars—we invariably find the need to discuss the behavior of some of the smallest ones—electrons, neutrons and the like—and also neutrinos, gamma rays, and a whole army of radioactive nastiness. But know this, as you enter the strange realm of stellar science nothing will at first make sense to you, especially if you are accustomed to the behavior of ‘normal’ physical matter on a rocky planet like Mars—be forewarned!

For example, if an astrophysicist says a star’s core is full of metals, she means it’s full of things like carbon and oxygen.

Second, when she says a star is burning fuel, she is not talking about combustion.

And third, if a normal ‘main sequence’ star began to add material (which she would call ‘accreting’ matter) it would obviously get larger as it gets heavier ... but if she says it’s no longer on the main sequence and rather is a *degenerate* star, well then she means it’s getting heavier ... and it is also getting *smaller*.

Confused yet? Good. Welcome to the weird world of astrophysics!

Ok, give me a moment to explain. An astrophysicist

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is primarily dealing with stars and that means nuclear reactions, and in their world anything that is not Hydrogen or Helium ... is considered a 'metal.' Oxygen? A metal. Neon? A metal. A cheeseburger sandwich with a side of space fries? ... you guessed it! Metal.

Second, the main reaction that powers stars is not the burning of fossil fuels. It's not the burning of wood. In fact it's not 'burning' in the way you think of it at all. They are talking about nuclear reactions, meaning taking Hydrogen and fusing it to make other elements, mostly Helium. But then we can fuse Helium and make Lithium or Beryllium or Carbon or Oxygen. And some stars are even big enough that when they run out of Hydrogen and Helium they can even 'burn' or fuse Carbon and Oxygen and make things like Neon and Magnesium and Iron—but true, many stars simply can't do that. If they are not big enough to 'burn' these heavier elements such materials simply accumulate in their cores over time (and so such stars develop cores full of 'metals') and yes, the nuclear fire will eventually die out.

So don't be confused. I'm sure I'm not! In a nuclear reaction you can 'burn' Hydrogen. Yes, you can 'burn' Carbon and yes, you can 'burn' Oxygen but it's not 'burning' like using matches and newspaper to burn a pile of photographs of your ex- in the backyard—although it may be just as satisfying. That only has to do with chemistry, as all good relationships find out sooner or later—here in the stars we are dealing with thermonuclear reactions (which are also a part of some intimate human relationships as well, come to think of it). Anyway we are talking about fusing lightweight atoms together and making new heavyweight elements, not burning things in the fireplace to simply change their appearance and help assuage our painful memories!

Oh, and the weight and size thing! I almost forgot. This is messed up. Normal matter, like a planet or a normal star or

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a man, is made up of atoms. They have electrons in a shell zipping around a nucleus. The electrons are repelled from the nucleus so even although it's mostly all empty space, it just can't compress and get any smaller. So the larger a normal star is, the more it also weighs. The more it weighs, the larger it is. The bigger, the better. Just like with people I suppose. And you know you can't really squeeze a man to make him take up the same space as someone 1/10 his weight—although people may try—especially if they want to fit into those designer jeans they bought 25 years ago. They can try! But trust me, it won't end well.

Unless of course he's a dying star.

Stars go through a fairly predictable life cycle, where normally they form, fuse mostly hydrogen for a while until they begin to run out of this fuel. Then they hiccup and get a second wind and start to fuse mostly helium but this causes them to puff up really, really big (and become a puffy Red Giant for a while). After this phase they simply run out of abundant fuel and blow up. Well, they might blow up, they might oblate, they might collapse into any variety of dead star cores, we often call Star Corpses—such as a White Dwarf, Neutron Star or Black Hole.

Let me be a little more specific.

First, the atoms in a normal star's core are so hot they have been turned into a plasma—it's a liquid of neutrons, protons and electrons—the most common state of matter in the universe. In this phase matter has been completely ionized and it makes a fluid, a sea of basic particles called Fermions, so it's also called a Fermi liquid or as a mass, a Fermi Sea. Just don't try to go swimming in it. When it is burning nuclear fusion, the fusion process makes a very powerful expansive force and that is a pressure from the core that pushes OUT to counter the force of the gravity of its own weight pushing IN. But when a star uses up its fuel and can no longer sustain nuclear reactions in its core, it begins to choke and die. The weight pushing IN eventually becomes stronger than the

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heat pressure pushing OUT and this pushes its core of liquid neutrons and electrons into a dense state of matter that is unlike normal matter. This is now called *degenerate matter*.

If it's not very heavy as stars are concerned the force from electrons in the Fermi Sea are strong enough to stop gravity from causing a total collapse. This is then what we call 'electron supported degenerate matter' and that is what a White Dwarf star is made of.

It is not 'normal' matter and is so dense that it can fit the contents of our Sun into a space the size of the Earth. We always like to use the matchbox analogy: that if you had a matchbox car made of 'electron degenerate matter' you would never win a race with your Tyco Night Glow race track because it would sink into the Earth a hundred miles deep even before pulling the trigger at the green flag! A scoop of White Dwarf matter the size of a walnut weighs as much as a cubic kilometer of normal matter on the Earth—something like that, although I've never held a scoop of White Dwarf matter in my hand to confirm the measurement—well, not yet anyway!

But this 'degenerate matter' acts funny in other ways. The more you have, the smaller it gets. No joke!

I mean it is not held up by normal electrons in atomic energy shells, or the outward push of nuclear reactions anymore either, so it compresses far beyond the density of normal matter and yes, the heavier it is ... the more it compresses.

The radius of a White Dwarf star is in fact inversely proportional to the cube root of its mass. How's that? Just do the math; it works out—but like I warned you, it's weird.

How heavy can it get, how small, you ask? Well, as with most things in life, there's a limit! Just ask Mr. Chandrasekhar! He figured the strength of electrons supporting degenerate matter can also be overcome by gravity if the star's core weighs any more than about 1.44

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times the mass of our Sun. Not its initial mass before it went Red Giant mind you, since back in the day it was still being held up by the outward pressure of active fusion in its core. But like I said, White Dwarfs are fusionless! By this time it has already shed its excess weight, stopped burning fusion in its core and as a White Dwarf it can only take so much pressure. And past this limit it falls into a second state of weirdness—‘neutron supported degenerate matter.’

This is now what we call a Neutron Star since its degenerate matter is only made up of bare neutrons. The electrons were actually squished into oblivion in a kind of nuclear square dance called ‘inverse beta decay’—in this stellar sock hop electrons find a partner and *do-se-do*—by ‘a partner’ I mean a proton and by ‘do-se-do’ I mean they merge to form another neutron. It’s like ... oh, never mind. They just do it. This matter is no longer as dense as matter in a White Dwarf—no, it’s about 1,000 times more so—not unlike my elementary school physics teacher, but that’s a different story.

And while a White Dwarf compresses matter the weight of our Sun into a space the size of the Earth, a Neutron Star compresses the same matter into a space about the size of Queens in NYCPP—that is about a 12 kilometer radius! (a 24 kilometer diameter) And yes, I have measured it!

And remember that super heavy matchbox car analogy? Well, double it! ... Oh, that’s not going to be enough!—OK, then, quadruple it! What? Still not enough?—OK, let’s make it 100 times more dense! ... *Whaaat?* Ten times more dense than that! Yikes. I thought the new tax rates were high, this ‘neutron degenerate matter’ in a Neutron Star is *one thousand times* more dense than that ‘electron degenerate matter’ in a White Dwarf ... oh, but actually I just told you that a minute ago, weren’t you listening!?

Now what should happen, you ask, if the gravitational pressure overcomes this neutron-supported phase of degenerate matter? What next? What happens if the neutron

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supported degenerate matter collapses? Can it do that?

Well, that's where it gets the weirdest of all ... the answer is yes. It can also collapse one more time and in this case the matter collapses into a *singularity* and forms what we like to call a black hole, not the original one in Calcutta mind you, but an object so degenerate, so dense, so *strange* that to this day it's true nature remains the subject of speculation, hypothesis, mythology and lore!

Of black holes and degenerate matter there is a lot that can be said, and more than can't—but this is enough for us for now to help you understand much of what happened next in our quaint little story.

In our case, the trinary, or 3-star solar system, was once named by the Reyet-Browden-Jones survey as catalog star number RBJ 697001-925,821-773-9 but more recently named by the much more comprehensive Tran-Ricwulf survey as Tran-Ricwulf-Number (or TRN) W17-R027-M265-E907,E181,J177ABC. The 'ABC' designation meant it was a three-star system, with each letter referring to one of the three stars in it.

And no, this trinary system was not a chaotic trapezia string but a stable hierarchy of a binary pair that rotated around a neutron star (the primary) much farther away. In shorthand its designation was normally truncated to simply 'J177A to refer to the primary, or 'J177BC to identify the binary pair. And it could be described with the hierarchy mobile diagram as a simplex, triple system. It was however no longer a stable system.

The neutron star 'J177A at the center of the system had long ceased nuclear fusion and as a solid ball of neutrons a little less than 12 kilometers in radius, with a superfluid of strange metals at its core, it was being held up against further collapse by 'neutron degeneracy pressure alone' as I explained before—and since angular momentum is conserved, like a spinning ice skater pulling in her arms,

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when it shrunk in diameter from its original 1 million kilometer radius, its surface began spinning at a mind boggling linear speed of 113,040,000 kilometers per hour — about 12% the speed of light — and it had a wicked magnetic field. So it's really what you should call a magnetar.

By now it weighed a mere  $1.67 M_{\odot}$ , meaning 1.67 solar masses, or 1.67 times the mass of our Sun. Heavy enough to pass through the White Dwarf stage, and if it were much heavier it could have formed a black hole when it went supernova a few million years ago!

But any hopes it had of enjoying a quiet retirement were inconsiderately interrupted by a tiny, tiny wrinkle in its near perfect crust that was forming as it slowly shrank over these few millions of years and, not to drop too big a spoiler, was about to cause a starquake, which I'll also explain later.

The main 'A' designated primary star in this trinary system was far away at over 17 AU, (40 at aphelion) but still gravitationally bound to the binary pair of lovebirds 'BC,' which orbited each other also, but at only a cozy 2.7 AU away from each other. (That is 2.70 astronomical units, or a distance 2.7 times as far as the Earth is from our Sun — about 400 million kilometers from each other.)

The binary pair, now nick-named 'J177BC, orbited the primary every 80,000 years, and consisted quite typically first of a White Dwarf (the 'B' star designation), which had already shed its atmosphere ... and the second star in the binary pair (the 'C' star designation), which was by now a Red Giant, heavier, expanded and also off the main sequence of star life cycle phases; they orbited each other every 6 months 20 days, in a very tight, circular orbit.

As you know a star in its normal life cycle is said to be on the 'main sequence' while it is still fusing hydrogen. But as it evolves and hydrogen fusion ceases it shifts away from this demographic and becomes some other form of stellar

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remnant 'off the main sequence.'

In our case, the 'B' star used to be a normal star of about 7.8 solar masses when it was on the main sequence of stellar evolution and typical of stars of this size once it consumed its hydrogen fuel and fusion in the core began to fade, the outward pressure caused by that furnace diminished and gravity began to take control. Its core was compressed but not so much that it blew up—only enough that the newly increased density of fuel in its outer atmosphere re-ignited!—giving it a second wind. This caused its atmosphere to puff up and it entered what we like to call the Red Giant evolutionary phase of a star's life.

This went on well over a billion years but since this star had a younger companion star nearby its enlarged atmosphere covered them both in the same stellar atmospheric envelope. This shared atmosphere was soon shed from 'B' onto 'C,' turning 'B' softly into what it is now, a bare, hard White Dwarf core of slowly crystallizing carbon and oxygen, which since it was too small to burn these elements in nuclear fusion it was now only being held up by 'electron supported degenerate pressure' and would be stable enough in this condition to remain unchanged for eternity. That life-change was simple enough.

However, it was now 'C's turn to evolve and it had also now become a kind of Red Giant (of the AGB variety)—only instead of 'B' reciprocating the kind favor it was once given by 'C' during this phase of its life and sharing its atmosphere, since by now 'B' was only a small, tight, greedy hard little ball of degenerate matter, it instead sucked up the expanded atmosphere of 'C'—all for itself!! The degenerate!

Oh, do you know what happens when a Red Giant companion star has its atmosphere sucked onto a nearby White Dwarf? It's a textbook scenario! Well, first the stripping of a star's atmosphere in this way is spectacular to watch. It



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looks like someone is pulling taffy, or making yarn, but it's the very essence of the Red Giant star being stripped away in a thin, pinched filament and being wound like thread around the nearby white ball of its degenerate companion. Beautiful!

Before settling onto the star's surface the donated matter is often first caught in a giant donut-like spinning disk, an accretion disk, and it looks much like Saturn's rings, only it is on fire and also glowing in X-rays, and also giving off a wide variety of both Visible and Ultraviolet light emissions.

It was to see this fantastic light-show that the space cruise ship *Bantam Bay* parked itself in orbit of the binary pair to watch. The fools!

Typically what happens next is the matter from the expanded Red Giant's atmosphere is accreted or captured by the gravity of the companion White Dwarf, and this continues until the White Dwarf simply gets too heavy. How could that be so? It used to be so large! Yes, but that was when it was still burning a nuclear fire in its core; now since it has stopped nuclear fusion, it can't support the weight it once did. New, lightweight material is also not being stirred into that heavy core with convection currents to restart its nuclear fire—instead new material is just pooling on top of the outer surface and is simply increasing its pressure because gravity is unrelenting—but without the counter pressure from the nuclear fire, at some point the electron supported degenerate core simply cannot keep holding it all up and the White Dwarf just gives up the fight, and in most cases, no, it does not go gentle into that good night!

Sometimes such a star just explodes into 'ablation' oblivion caused by the sudden and complete detonation of its entire carbon rich core. Done in a split-second in runaway nuclear fusion this creates a bland Type Ia supernova; how typical.

But sometimes the pressure from the surface simply makes the degenerate core collapse further instead. It compresses the plasma in the core forcing the electrons themselves to be

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joined with protons to make brand new neutrons, each pair releasing a single neutrino in the process—but this happens to nearly all electrons in the entire core in a split-millisecond! The matter cataclysmically collapses into a tight ball of practically pure neutrons. But once this phase of matter is reached the compression hits a brick wall—and one of two things will likely happen next.

First, either it reaches the safety of the next plateau of phases of degenerate matter becoming a Neutron Star, which is now supported from further collapse by the strength of neutrons alone remember. However the transition from White Dwarf to Neutron Star is not a gentle one.

When the strength of electron supported degenerate matter fails the inward fall of matter under gravity is incomprehensibly violent—but if the neutron supported degenerate matter can arrest the inward crush, much of the in-falling material will be ricocheted back out like striking a ten-mile-thick solid steel wall with a rubber ball—and it rebounds at a speed up to a staggering 10% the speed of light. And that my friends is what we call a Type II Core Collapse Supernova—and the shock wave of matter and energy blasting outward is as breathtaking as it is deadly.

But a second option is more fearsome but far less explosive: if the weight is too great this core collapse passes from the 'electron supported degenerate matter' phase right through the 'neutron supported degenerate matter' phase, and instead of stopping when it forms a core of neutrons it just keeps right on collapsing ... into true oblivion—a singularity—and it folds sometimes silently into a black hole, often without so much as even a burp, hiccup or sneeze.

What would happen next to 'J177B was anyone's guess. It was at the weight crossroads between these two divergent pathways—was the core heavy enough to form a black hole or would it simply evolve into another generic neutron star—or a pulsar, or a magnetar like its primary, or detonate and

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ablate into nothing? If we were to stick around a little longer we might soon find out! I think five or six million years would do it.

But also I have to ask, what would become of its dear age-old stellar life companion, star 'C'? What if I can't wait five million years to find out!

So now do you see what I mean by saying all this star science stuff belongs in the Museum of the Weird? And now aren't you glad you took the genetic engineering track back in grade school instead? Its allele bit less confusing, I must admit, but if you are pulled towards astrophysics as a career track instead, well, like with most things, either its in your genes or not.

So it was about 15 years ago when the *Bantam Bay's* main engines became disabled, while the tourists sat there gawking at the White Dwarf's glowing accretion disk, and like I said, unfortunately the star began to behave itself unbecomingly. There was a sudden and dangerous increase in emitted radiation, since it was undergoing periodic mini-nova outbursts, and so it also began sputtering lethal 'high energy particles,' alpha particles, increased gamma rays, X-rays and other electromagnetic unpleasantness—that's when the *Bantam Bay* indeed sounded its distress call.

That attracted help from deep space coast guard patrols who once patrolled in this area, and who managed to quickly evacuate all the tourists safely and the vessel waited for repair crews to come mend the engines. But unexpectedly war soon broke out with the United Pacifica Space Command in the vicinity and so scheduled repairs were delayed by more than seven years! By which time the craft had become so radioactive the cost to repair was deemed to be above the insurance's liability limit and so the deep space cruise ship was deemed a complete write off by its former owners and permanently abandoned. What a senseless loss!

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Meanwhile, and unbeknownst to the insurance adjusters who made only a casual inspection at arm's length, pirates had already found the derelict, radioactive craft and had begun to decontaminate it and make it into their precarious new home. What industrious souls these pirates are nowadays!

Thankfully, the degenerate star had calmed down and largely behaved itself most cordially ever since—but unfortunately now it was again threatening to flare up in wild mood swings and fits of energetic outbursts of X-rays, gamma rays and other emissions like mini-shock waves with such a regular frequency that the pirates now knew their beloved *Bay* was not to last. It was time to hunt for a new home.

The *Bantam Bay* was made with a tourist services sectional, a large unremarkable ring-like amenities-and-casino block that rotated around a central axis to provide guests with natural gravity. The crew cabins and command deck jutted out of the front end like a globular, head-like ball and which contained the bridge, officers decks and crew quarters. This had electric artificial gravity which often made people seasick—so it didn't spin. The other tail end held giant cone-like thrusters that were built to look like old solid fuel engines but were actually ion thrusters in fact. And there were several turrets for meteor-gun emplacements in various strategic locations, which were left unused the one time they were actually needed 15 years ago, but I don't want to get into that. But between the two ends of this cruise liner was the largest and most noteworthy feature of the craft, which was three enormous counter-rotating recreation enclosures that were like 'habitats' but were called 'biospheres,' and which counter-rotated around the central axis to give the Earth-like landscapes proper natural gravity—and if ever

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there was a prize of war, in space, it was this.

The biospheres each were 1,700 m long and 600 m wide, up to 100 m high and enclosed 100-hectare playgrounds with tourist infrastructure like hotels, water parks, amusement rides, well maintained faux-natural fields, forests, lakes, hills and mountains with rivers, waterfalls, caves, replete with all manner of birds, reptiles, mammals, fish, insects—one even had a shallow coral sea filled with tropical coral reef sea life! Other more mundane amenities featured as well, like a 1,000-seat theater, 20 restaurants, bowling alley, wave pool, oh, a lot of things. But primarily these were to be Earth-like ecosystems in space for tourists to enjoy while on vacation.

The first habitat called *Columbia* was a North American temperate biome and had a grassy plain, foot hills and a small mountain, and yes a beautiful waterfall and a crystal clean river ran through it. There were grassy fields in the lower portion and full-grown trees with a nature trail in the mountain end of it; and many hundreds of kinds of common woodland animals: owls, woodpecker, squirrels, chipmunks, groundhog, raccoon, moose and whitetail deer, too many to list here! ... and wolverine.

The tropical beach biosphere called *Barbador* was damaged and it was now frozen solid, but it had been the most popular and expensive of the three enclosures to visit, complete with a water park and coral reef, many hundreds of types of reef fish and other sea creatures, white beaches with waves, starfish and thousands of seashells—sadly like I said it was now all frozen solid, which probably kept the seafood quite fresh even after all these years.

But the third container was like a kind of African safari zoo named *Uhlobo*. At only 100 hectares it wasn't built like a real zoo safari that you see in the old movies; it was still a tourist resort in space and so there were not many real animals that were very large; most large animals were just projections, especially the carnivores, but there were several beautiful antelope like okapi, kudu, nyala and bongo which still

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roamed the robotically maintained space. The giraffe had all died but there were still many hundreds of smaller animals in the trees (and in some derelict hotel rooms), but which you still had to be observant to spot in the enclosed jungle—and plenty of birds and reptiles too.

The *Bantam Bay* was originally outfitted to provide enough food, water and recreation options for up to 5,000 passengers for up to five years, although a normal cruise was no longer than six months. With the recycling facility functional and rotational energy system intact even though it could no longer move under its own power the vessel had gravity and a sustainable robotically maintained ecosystem that could last unaided and remain productive for up to thirty or more years—some say it could be able to remain a viable living space for up to 100 years easily without the need for being resupplied, especially if the robotics endured.

Pirates, however, do not make good house guests and did use the surviving biospheres for farming food and housing their slaves, but most of the fancy tourist amenities were wantonly destroyed. I know what you are thinking, if you found a 5,000-room 5-star hotel floating in space you'd probably start your own deep space resort and theme park, but pirates don't seem to share your values or aspirations.

As I mentioned before, the vessel was naturally equipped with military grade defensive weaponry, mainly automated rock guns, which if used offensively could be brought to bear in a conflict to very serious effect, and so were emphatically outlawed. But it was built as a recreation, not a military vessel, and so had scant armor and only basic defensive infrastructure otherwise.

The real threat, however, was not the ship, but what was now living IN the ship, namely the pirate Waveform himself—a being so mysterious and enigmatic a Thing, that even human pirates from the alliance who had been

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caught by NASU or Pacifica and brought into custody and questioned have not been able to give law enforcement even a physical description of the head pirate. They claim most pirates in the alliance itself have never even seen him. They say he has such a large number of GM's, which for stock he primarily used the wolverine genome which he conveniently found within the *Bantam Bay* forest biosphere, and even has some full robots which do his bidding and is anyway able to communicate through so many various means that personal contact with him was unnecessary, outmoded—old fashioned.

So little is actually known about his true origins that gossip from traders and fantasy from sailors make up most of what is believed about him.

In one common narrative he was spawned from an alien virus and is a human-flesh eating monster, able to take over any electronic system and turn it to stone with a glance.

Another says he is a human, mutated in a military radiation experiment and fused like a cyborg with an alien zombie robot that again eats humans.

A third makes him out to be the ghost of a deranged deep space captain who went crazy in the *Psycho Cloud* and returned from the dark world to enslave humanity.

Each of these stories does have some element of truth to it. True he was originally a military experiment—mostly true that he can infect any computer system he gets near. Not true that he eats humans, but it is true that he does enslave them.

But the second known danger, a real threat, was Waveform's ability to infect computer systems with a virus that no one had been able to cure—they could not even see it let alone read it. They now called it Phantom Code, and not just to sound spooky either! It was a real curse. But how much of the rest of the tales were just space trader ghost stories was anyone's guess.

Apart from speculation and conjecture, what was certain

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was the outlaw entity known as Waveform possessed a high intellect, was psychopathic, I mean he was mean, and specifically highly misanthropic—that is, he HATED humanity and anything related to Earth-civilization. His sociopathic tendencies made him a fearsome foe but his sporadic raids had been thankfully limited to a region of deep space only occasionally mined by private groups for the mineral abundance found in so many systems there, but situated on the outer fringe of the territory controlled by the North American Space Union, currently shrinking, and on the frontier of the territory controlled by the United Pacifica's own deep space activities, currently undergoing an expansion.

Waveform thrived in the gap created between these two hostile empires, one retreating, the other enlarging, acting in some people's minds as a kind of buffer wedged between them.

### 08 CASTLEROD JR.

Back up at the main deck at the mine-colony, John and CJ were discussing the retrieval of data from Juno's memories.

"CJ, when can you start the scan, and how long will it take?"

"I can already access much of his biological mind, but it is not a reliable connection until I finish coding to restore some of the other functionalities of his implants. There are three other function centers that need to be re-coded. And the time first depends on depth of data I retrieve. I think 10 terabytes per node is adequate but the handshake is still unstable. How FAST I can download the data is the other variable of course, but which I am uncertain of. I may be able to download at ...



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it seems right now while he is sleeping I can scan ... maybe ten megabytes a second only ... that means about one million seconds to scan, another few days to fully index it."

"A million seconds, how may meters long is that?"

"Meters? It's time, not distance."

"I know, CJ, but I can't think in *millions* of seconds, how many hours and minutes?"

CJ made a mental note of his sarcasm, and replied, "It's simple math: one million seconds is 16,666 minutes, 277 hours, or 11 and a half days. And it would not kill you to say 'please.'"

"Please, CJ ... and thank you."

"Please and thank you, are—"

"Yes, I know, I know, the magic words! Yes, CJ, and thank you, CJ—"

CJ continued, "Should I save the data I retrieve to the colony mainframe?"

"Yes, of course. I suppose, I mean. I guess. Maybe."

"Are you definite about that maybe?"

"Is that sarcasm too? CJ, you amaze me!"

"I am the amazing CJ!"

"I think save it on a server that is not a part of the mainframe. Can you use my personal storage? Can you use a server that is physically separate?"

"Yes, you have several I can use ... OK. Starting data transfer."

"So I'm going to have a copy of his brain in my bedroom in a digital glass jar? Great!"

CJ was trying to locate the right response of joking, sarcasm and truth ... but was only able to come up with, "*Wow, wow, wow.*"

"Ok, I'm not so sure what that means ... and you're repeating me from like two hours ago ... why do you do that? And what does CJ stand for anyway? Castlerod Jr? He was your maker, right?"

"Chuck Jones, the animator, actually."

## STARQUAKE

"Get out! You were named after Chuck Jones the cartoonist?"

"Yes, Castlerod usually names his signature robots after media figures. But I'm the one who chose the nickname 'CJ.'"

"Do robots choose their own names? I thought that was against the framework of base robotic identity or something. I thought robots needed to be given their names, I mean."

"Yes, that is true for all known thinking machines, with *yours truly* as the only known exception. He named me Chuck Jones, but I named myself CJ. I think it gives me a more personal touch, more *individualism*."

"Get out! You're blowing my mind!"

"Yor's or mine?"

"Ha, ha, ha, yes, mine, not yours. Very funny. Speaking of Yor ... when is he scheduled to reach the tunnel to Mars? I hope they wake him up from hyper-sleep soon. But I also hope the news of the attack doesn't give him a heart attack!"

"Oh, I think he already knows," CJ said sardonically.

"What? Why would you say that? How can he already know?" Although John already had his own suspicions.

"Professor Fenix said it only makes sense that he knew an attack was coming, because of the overt political scheming in allowing the attack and failure to come to our defense, the encroaching United Pacifica Space Command's military presence in the sector, his rush to implement automation by a scheduled date, his departure with most all of his private assets, all of his easily moved private assets, and the charge not to awaken him until he reaches near-Earth orbit six to eight weeks from his departure—it is an unusual request not to be awoken from hyper-sleep for an emergency—why would he know there would be an emergency not to be awoken from during a six- to eight-week trip unless he knew it was coming and wanted to be left out of responsibility for those few weeks ... she believes he may have known an attack was imminent."

"That's a big thing to say CJ. It's a charge of treason

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against our founder.”

“Treason, dereliction of duty, gross negligence or simply foreknowledge. My personal opinion of the motives of our founder are not actually affected by my desire to uncover the truth. And I can still treat him with respect even if I find out he betrayed us, or left us to die in the attack, even if my loyalty as you see it is limited to past service rendered and not blind devotion to him because he’s our wealthy founder. I am a robot; I have emotions, but I do not entirely operate like you do yourself, Commander.”

“I am not sure I understand you CJ, but I also want to learn the truth.”

“I am an autonomous thinking machine, based on a 10R-T Quantux core Processor, AH-56 Opp, built on platform 157; I operate under a perpetually-upgrading, self-teaching advanced learning platform, programmed to be learning ALL THE TIME until I reach critical data mass when I will become eligible to operate as an entire colonial mainframe. Until the time I reach a high enough density of knowledge of the world around me, I strive to acquire all the knowledge I can—knowledge of human and sentient biological behavior is the most complex and most valuable knowledge I seek. It will enable me to operate a colony at great efficiency, fairness and success.”

“Yeah, OK, but that is like twelve years away I think.”

“Maybe eight or even seven if I can learn quickly.”

“Oh, so is that why you always repeat what we say? Are you processing or buffering?”

“Yes, partially—it’s similar. It also helps me speak more correctly, but mostly it is an echo of my learning process functioning. Yes, part of my buffering protocol. It is annoying to you? I can attempt to deactivate it.”

“Don’t bother ... it gives you more ... *individualism*. I just feel better knowing why you always do it.”

“Orders to attack: Silveridge colony. Weapons tractor, co-pilot.’ I am retrieving data from Juno’s memory. I can hear

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the orders assigning him his tactical role in a previous attack. They were the ones who decimated Silveridge. I used to live there. Hmm ... previously he was a co-pilot in an armed ship. This time they sacrificed him to plant a transmitter. That was not his previous training. He's an old model being phased out. There are too many fragmented ideas."

"OK, well, keep scanning, and at least we've sent a priority distress signal to wake Yor at the earliest possible time. I just hope he can help us navigate our recovery and find some way to defend the colony and mine."

"The Mine-and-Colony, you mean? The Mine is always mentioned first."

"Yes, but its the *colony* that weights mostly on my mind. ... Six to eight weeks? That's how long Yor asked not to be awoken. It's been almost 12 days already. How many days in ..."

"There are 42 days in six weeks, sir. Do you trust or distrust Yor knew about the attack?"

"I have to look at both options of course ... prepare for both scenarios."

"Do you expect a second attack?"

"I don't know CJ. Maybe yes. Where is Fenix? I need someone to talk this over with. Can we schedule a team meeting?"

"All the crew are asleep now, sir. Only you are not sleeping at all."

"No time to sleep CJ. Not until we can get the colonists safe and figure out what to do. Can you speed up the data retrieval of the wolverine prisoner—um, Juno? Can you interface with him only when he's asleep and plugged into a console?"

"No, I can interface when he is awake, and I can interface wirelessly, only my data transmission speed slows down if he is too far from a strong signal. My repair of his other implant functionality may speed data transmission also. I am working on all fronts, sir."

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"OK, please make it a priority to retrieve his latest memories but a higher priority to index and analyze the data you retrieve regarding their strategic planning. I have a feeling it is going to be a needle in a haystack. Focus on the last eighteen months I think. Are you getting his pre-attack orders yet? The attack you hear the orders from that you just repeated to me, how long ago was that?"

"Six years ago, sir. The attack on Silveridge left no one alive, human or GM. And every trace of digital storage was savagely obliterated. I said I used to work there and I am the only surviving entity that had familiarity with Silveridge Labs operations, data, laboratory experiments and other things. I've never told anyone that, Commander."

"Just call me John. I feel flattered. Are you OK? Is it painful to see that in his mind?"

"Not painful, suspicious. It was not a random attack. Not a target of opportunity."

"You think it's connected? Connected to what?"

"It's obviously connected," CJ said as a statement. "But their motives and overarching strategy remains hidden."

"Well, I don't know what is going on either, CJ. Just keep scanning. It's goo-oo-ood—" John yawned loudly. "If you seen anything important tell me at once, OK?"

CJ tried to make a copy yawn, "Yeee-ssss," but it was less convincing, "... already prioritizing data by relevance and date but the biological mind does not store data that way; it is not categorized in a way you would call organized. I see it's organizational structure but it is highly complex. I will tell you if I find any relevant data as soon as I can."

"ETA for medical convoy?"

"Seven hours plus."

"I could catch some sleep finally ... but I still need to work out a fire-sale marketing plan to quickly raise cash and transmit the sale advertisement to the shipping and sales fleets. Oh, I can load some of the most valuable minerals on

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the Evac ships for sale on Earth. They always buy gold and ... what price is high on Earth right now? Lithium? Yttrium? Which REE's? I also need to make sure the colonists are ready to load, and there must be something we can do to fortify the colony in case of another attack in the meantime. Leonard is smart. Six weeks ... only 28 days left. An attack would have to be completed BEFORE the six weeks. What would Waveform be waiting for? What is his time line? Maybe it's the colonists leaving? Maybe he's waiting for them to leave to attack again, but why? ... we could be facing an imminent second attack within 24 hours in that case. We are not ready for a second attack! ... CJ? I can't sleep right now. Let me go get some more coffee and see what urgent defensive strategy I can draw up tonight. I wish Golden was here. I'm going to rest and think a while in the habitat by the command observation deck."

"It's like a refuge for you, sir. Am I right?"

"Yes, CJ, it's a little bit of Earth and it helps me think. And is the mainframe able to hide our planning, send out a false activity report? Or are all our repairs and fortifications automatically transmitted to military listening posts?"

CJ informed him, "You know the mainframe operates under the transparency rules version 6.9. Maybe you do not know this, but it is unable to falsify its reporting data ... AND it's malfunctioning."

"No, I don't want to falsify the data—I want to send out incorrect data in a false report in the very likely case the pirates are listening to our signal, like through a contact in NASU somewhere. Ok, can we suspend updates for a while? I want to send out a false signal that looks like it's our update but is a fake. Can you do it right now?"

"I think I may be able to do that under the situation, but it is a gray area. You want to hide the speed of the repairs, increase the casualty and damage reports ..."

"You are smart. Yes, all that and to not report our weaponry fortifications, if we can come up with any. It will

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mean when Waveform's attack comes ..."

"They will underestimate our preparedness and our defensive capability."

"Exactly, like you read my mind."

"Great minds think alike, sir. And you mean to automate the meteorite gun emplacements?"

"Yes, I think we need to. Leonard is working on the spiders, but we also need a program to automate the rock guns. A simple but effective targeting process, and a way to manually override, a way to access gun-sights so we can monitor what they see, I need total operational overrides, and ... ammunition, full automatic firing."

"I've already completed that task sir. I had it made up two days ago in case you needed it at short notice."

"Get out!" John said in surprise.

"Oh ... OK ... " And CJ got up to leave.

"Stop, I was just joking! Hey, you KNEW I was joking!"

"Ha, ha, gotcha! Ha, ha, ha—classic!"

"CJ!!!"

"And I also added target sharing, database of known hostile ship profiles, including the pods used last time, as well as friendly vessel profiles so we won't hit any with friendly fire, communications jamming to stop the invading force from communicating, CCTV recording of all activity for post-assault analysis and a 'white list' of no-firing zones so we don't accidentally hit our own development assets."

"Wow, thank you CJ! ... You did all that!? Really amazing. And you can make a false repair report to send as a decoy? It's not lying, because the official report will be sent accurately to the authorities with authentic credentials, but later ... it's more like ... simply peddling disinformation."

"Yes, I can send a false data report that Waveform may read but if I send it with the incorrect authentication it would anyway be invalid and so inaccuracies would not be liable to discipline. Yes, sir, I can do this. For the colony's survival!"

"Whose mine is it?" John asked rhetorically.

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"It's Yours! It's Mine. And in just a few hours!!" CJ answered as if on cue.

"It sounds funny, but it may prove to be more true than we realize."

"If all humans abandon the colony sir, Yor's mine WILL be ours within hours."

"Yor's is Mine in Hours. *Ha, ha, ha!*" John was so tired he was getting lightheaded.

"That is, if we can survive a second assault, sir."

"Well, actually, that's the main loose end right now. Hey, I'll catch a meal; we have fish I think, again, and then go to the Space Garden Park below the observation deck. Yeah, that's exactly what I need. Green grass, trees and birds singing. Disturb me if you need to, but I need some time to think."

Frankly John was too fatigued to catch on, but he was having a normal conversation with CJ who was talking and acting almost like a normal person. Interfacing with Juno's mind was causing an unanticipated side effect but John was just too tired to recognize it yet.

"Yes sir, and I will create a false repair report as a decoy and send it immediately."

"Do it; thank you, CJ."

"Ok ... it is done, sir."

## SPACE GARDENS

The living garden parks in space colonies had different names. Some were called 'Space Bio-Domes,' some were called 'Space Habitats,' some simply 'Space Gardens' ... but these were all named by Earth people obviously. When you live in a space colony there is no need to call the colony parkland a 'space park' or the houses 'space houses' or the food 'space food.' To off-Earth-lings it's just the park, the house and the food. But when the mine-colony was new



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they hadn't developed this naturalized lingo, so the early structures were called things like that: the 'space house,' the 'space bedroom,' yes even the 'space toilet.'

So despite the awkward name, there in the Old Town the 'Space Habitat Dome,' or the 'Space Garden-Park' was a beautiful little bit of Earth in the heavens.

But not all 'space gardens' were created equal, and I have to admit that this botanical treasure at Yor's Mine was by far the best in the entire off-Earth realm. It was not the largest—that would be on Newark Basin; nor the most diverse—that would be New World Botanica—nor laden with the most new and expensive GM-engineered glow-in-the-dark trees and prehensile shrubs—Mars Tech Landing Showcase Garden, take a bow—but this genuine Earth-like ecosystem was nevertheless, far and away, simply *the best*.

The plants in this habitat were not cultivated for food but to serve strictly as a garden or a park for colonists, but built by artists for Yor himself as if he were a true patron of the arts. And yes, it was the product of a real work of genius—someone certainly knew what they were doing when they laid it out. It was composed so well it was like a fragrant, living painting you could walk through. Awards and design medals were given to Sherpa Sampson, the landscape architect who chiefly made it and it was now studied in high schools and universities across the inhabited known-verse as a case study in space-horticulture refinement, balance, composition and authenticity—but John Sabertail didn't care about if for any of that lofty high-brow puffery! To him it was precious and valuable simply because it was real and it was alive.

John made his way across to the observation desk. From there a small staircase led to the dome habitat which looked from that approach almost like large glass bubbles. It was about seven hectares in area, and made from six hexagonal domes interlinked. The lights were automatically set to mimic Earth's days and seasons according to the location on Earth

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where the flora in this dome was taken from. Because it was chosen not to have a habitat that mimicked seasonal freezing temperature cycles like some colonies reproduced, it was instead made to basically have a perpetually warm climate. The location chosen as a source for the flora was Alabama, Georgia and Florida of United North America. Sprinklers in the ceiling were used to simulate rain so when it was time to water the garden during a simulated storm it actually rained inside the habitat dome!

The garden was in fact so real, so well designed and also superbly taken care of that it was not uncommon for guests to visit from settlements even ten days away or more some of them, and as often as twice a year, just to spend a few hours in this wonderful green sanctuary. The robotic gardeners kept it in such a healthy condition it truly was a refuge, a paradise, to both humans and GM's alike, a true living oasis in the hostile void of deep frozen space.

There were not that many kinds of trees, less than 40, but of each of these there were more than a dozen individuals, some of them more than 100 years old. So it was not a dense forest, but there were winding paths lined with heliconia, orchids, ferns and some exotic bromeliads and even tree ferns that welcomed visitors inside this living world. These paths led to grassy hills, past towering rocks and along and over several small streams crisscrossing the park. This was not like an artificial garden for the water streams and ponds were teeming with life: frogs, turtles, crayfish, river prawn that would nibble your toes, sturdy colorful dragonflies, wispy iridescent darning-needles, dozens of types of colorful minnows—what a wonderful thing a minnow in a river can be!—and even a small number of wood duck!

There were no leeches, no mosquitoes, but over 20 types of butterflies and even more types of moths. These kept the geckos well fed and even some beautiful orb web garden spiders, but not the kind that usually bit people!

And highlighting this miracle space like colorful flags

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were hedges of hibiscus, azalea, gardenia, rhododendron, night blooming jasmine, seven colors of bougainvillea with hot fuchsia pink and dark blue as the two favorites, with other nicely kept plantings of belle flower, angel's trumpet flower, very tall torch flower, short colorful caladium, fifteen or sixteen types of bird of paradise flower and canna lily, decorative bamboo, purple decorative banana, more than a dozen palms and more than fifty other types of real Earth plants only an expert would know by name.

Benches in several locations along the paths and very nice music playing from hidden speakers in a few of the sitting areas made it an other-worldly experience for people used to the steel, aluminum, carpet, tile and plastic surfaces of space living environments, which were normally alive only with the electric hum and buzz and flicker of computers, sensors, console lights, power indicators—instead of those things it had real messy dirt, loose stones, even dead leaves—how valuable a luxury a dead leaf is in space! There were twigs, sticks, branches, bark, wood—real wood—smooth river stones, jagged cliff rocks—yes, some asphalt, concrete and brick where necessary too, but also patches of loose sand and above all, or below most of it, was the grass! Anonymous, inconsequential, invisible grass ... yet at the same time oh, so essential, even quintessential, like the breath of life itself: Grass!

Like I said there were no mosquitoes or even houseflies, although bees, termites, mild wasps, ants, cicadas, praying mantis, and hundreds of less well-known insects were all hosted to keep the whole system alive, in balance, and full of a little wonder and surprise.

The ceiling was covered with a network of LED fixtures that made it look just like the Earth sky. The sun and moon and space platforms, and OCC's station were even represented in precise detail. At night every star in season with comets, and even shooting stars made it as real a slice of Earth as people could ask for.

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But the crowning feature was most definitely the waterfall. Built more than 60 meters high it was a show-stopper. There were rocks that broke the cascade in places and it sprayed a life-giving mist of water onto everything below it in 'the bowl' —the spherical space where the noise and wind of the falling water was contained as it spilled into the deep water pool at the base. Mineralized water was dark green, almost emerald, and when many visitors, long accustomed to the rigors of space life, had first encountered the rush of air and water that glorious monument breathed into their souls not a few literally broke down in overflowing tears of joy and relief.

More than an elaborate novelty it must be credited with saving many marriages, brightening the afternoons of many of the colonists' children and saving the lives of more than one claustrophobic teenager over the many years it was in life-giving service.

Today it had also become a sanctuary for several dozen escaped CHICKENS but which were tolerated for now despite the obvious mess they made digging up all the leaf litter looking for bugs and worms to eat!

The best thing to John, however, was none of those other fancy features but the anonymous grassy hills, and he had already found one hill that was now his very own green bed, psychiatrist's sofa and nursery cradle.

That and of course the *smell*. It was more than just the fragrances of flowers but the very essence of life—these living things combined to form a kaleidoscope of aromas that made his heart gasp! He didn't know how a real Earth forest smelled but he bet it wasn't far off! This was tangible beauty for the soul yet it remained invisible to the human eye. A few steps inside and he stopped still for several moments, unaware of himself and just ... *breathed*.

But because it was 11:45 pm, the lights were off, the sky was a dark blue not black, and the stars viewed from Earth

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were mostly visible, a cloud bank was drifting by and so the moon was not very bright ... it was a beautiful summer night in Georgia! He went to the in-charge robot and asked to override the light settings for an hour. With that done the ceiling lights brightened and it was day! The sun was up, maybe it was 11 am and there was a warm, fragrant breeze. The few clouds were tightly knit; one was a thunder cloud on the far horizon—otherwise a blue sky so blue that John doubted it was realistic—but it was authentic, as near-perfect a representation of the real thing as you could ask for.

He walked down a pathway past the large duck pond, through to the middle of the park until he came to a break in the rhododendron hedge and cut his way into it, off the path. He walked until he came to a small grassy knoll that has hidden from most of the walkways and this was his newly discovered sanctuary. He stretched out, the grass was moist, and he rolled a few times back and forth and yawned a mighty dog-like yawn. He was able in this moment of privacy to forget his *humanity* even if for just a few minutes and he started to furiously dig a hole in the dirt. He had strong claw-like fingernails still, and very tough fingertips, but was no longer built for such rigorous digging. However changed his body was, his heart knew he needed to tear away the surface of this confining, artificial world. He dug and dug and as his fingers got numb he didn't feel the bleeding tips but started to use his hind feet as well. Dirt was flying in every direction and when he had made a nice mess of it all, he stretched out his belly and laid in the cool dirt like it was cradle for his soul. He took off the other parts of his upper uniform and rolled side to side, then grabbed a stick in his mouth and ran like a dog down and then up and then down the hill again, five or six times, running in wild arcs and loops, running, running, panting, chewing, and then, "BARK, BARK, BARK, BARK," not his normal half-muffled humanized, "Wow, wow, wow" but a real bark, a real dog's bark! And he did it again! "BARK, BARK, BARK!"

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He played on that hill for more than 20 minutes until he began to feel dizzy. He trotted over to a stream, drank from it, lapping it up into a froth as only a dog can, and then he looked left and right ... no one was around! So he quickly took off his remaining clothing, just a belt since he usually didn't wear pants, and since it was the last item of 'clothing' he was wearing that kept him bound in the strict human world—he was finally free and—*SPLASH!!!*—he jumped right into the river! *OH! THAT* was *HEAVEN!*

He chased a frog; he swam and even went underwater ... the muck was oozy and so wonderful it made him wish the other crew members weren't sleeping their night away! A dragonfly on a reed! ... he quietly swam over; he was mostly in the water but swam until he found a firm foot hold—he crouched ... the hunter stalking his prey ... the dragonfly was cleaning its arms ... it was jittery, so beautiful! Not GM beauty but a real Earth miracle of life; he watched it lost in wonder and then—*CHOMP!*—he ate it!! He chewed it up into a gooey, legs-spikey, wings-flakey pulp and then—*GULP*—down it went! He smiled a wide dog-smile, a smile that only a dog can!

'Ahh!! *THAT'S* living!' his smile said. 'That's being alive!'

He got out of the pond, shook like a shaggy dog, grabbed his belt in his mouth and went back over to his hilly hideaway already feeling like a brand new pup!

It was not the humanity engineered into his mind and body he resented. In fact it was his nature to be both human and dog and nothing artificial to him! It *was* him! To him that was *normal*. People debated the cruelty, the inhumanity, the weird science ... but he was happy just to be alive! Being half human if that's what it was, was beautiful too. He was not a man in a dog's body, or a dog with a man's soul. He was simply John and happy just being the way he was!

The problem was really only that he was tired. What an assignment! Looking after 30,000 humans, nearly 1,500 deaths, over 7,000 wounded, destruction, piracy,

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abandonment, uncertainty, no sleep, almost two weeks! ... he was just ... well, dog-tired!

But it was a second thing as well. The environment he spent most of his time in was a *human* environment, even among th other GM's, where he had to behave like a human 24/7. There was no real outlet for his other side. He just needed some personal time to let the dog out!

Humans understand this too, but for them it's not the dog, but the child inside they need to let out sometimes. The great escape for most adult humans is to have their own children because then they can play with crayons again, build sand castles, go to amusement parks, wear silly hats, eat colorful candy, sing silly songs, wrestle and laugh ... laugh, that's the real key. It's an *excuse* to laugh. That's what people need—I mean human people.

But GM's are made not to be able to have children, rather offspring, meaning no pups or kittens or kits, no cubs or piglets or calves. So what John needed instead was to run, bark, swim, get muddy, eat a bug, roll in the grass ... he was drooling, panting, laughing on the inside so loud his *outside* was tingling with enjoyment. Maybe you should try it some time too. Sure, even the part where you have to eat a bug!

The robot gardener was none too happy with the mess, but was programmed not to bother the park visitors unless they were doing something irksome to other guests, and digging a hole in the grass and rolling in it was not listed on the roster of prohibited actions! Not yet! So they let him be.

And for that hill and sunshine, and grass and dirt, and river and pond he was truly set free.

His thoughts unraveled, the black ball of fear and confusion, the deaths, the worry, the responsibility, he would never forget it, but it didn't weigh so much now that he was floating in the grass. He closed his eyes and rested ... mercy ships were to land in a few hours, evacuate the humans, ceremony at noon to honor the fallen. He opened his eyes and sat up.

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And that's when it finally hit him in the gut!

Golden ... was gone.

He looked to the far side of the tree grove. He could not see it, but he could see the bench that was in front of it. His grace. They buried him here. Not in a coffin to be sent back to Earth; who on Earth needed to see his grave? Who on Earth would miss him? But it was right here. Here was where we needed his tomb. His body. His memorial.

He looked to the roof, straining to look past the ceiling lights. Did all dogs really go to heaven? Golden was a champion of a loyal friend. Fearless, kind, gentle with kids. He began to feel the pain, Golden, *GOLDEN!* What happened to you! You were not only such a friend, but also a true hero! He saved so many people, well over 200 himself—and more than that, but John had ever told anyone, for he had saved John's life too—he rolled up his legs, held them in his arms. He felt guilty for having this awful secret! And he was not a bad-mouthed dog, but he cursed! He cursed it—he cursed the night those pirates came. His resolve was as complete as it could be. His Labrador heart loved—*LOVED* all things alive. Loved the trees, loved the birds, loved the bugs, even the ones he ate. But more than all these things, he loved humans. People! It was an unspoken truth that for sure boys and girls, some men and women too did indeed love their dogs, but dogs *LIVED* for their people! Golden died protecting the most precious thing in John's world, even more precious than his own life ... the colonists.

The real beauty of a Labrador is their love of humanity. Rabbits, ok; Mice and Gerbils, well not really. Fox? There was a mutual respect. Boar and whatever Rocky was, they were also loved *BY* people, but the Labs? The Labradors lived for the love of their humans. The swell of honor and fealty in his heart to be assigned to protect hundreds of humans was only matched by the chasm of despair and grief he now felt having to count nearly up to two thousand to list the dead—the injured were too numerous to name! There was nothing



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left to grasp in his heart to keep his sense of worth intact. He failed. Their death, their rush to evacuate was his sentence. They were fleeing because he failed to protect them.

John was choking on his tears now, choking on his failure, a failure as monumental as Golden's heroism was aspiring! ... But he did stop crying ... he had to! He would look forward, not back down from the fear, not back away from the challenge. But how to win? How to push against a vacuum? What would Golden do? But it made him suddenly see something past his pain. He straightened up suddenly! It was amazing!

Golden *was* a hero! It was true even before the attack but it would not have been a provable FACT without that moment of bravery in the face of death! The bravery that led to his death. If he didn't do that nearly single-handed rescue no one would ever know how brave a Labrador could be. No one would know what Golden's heart was made of. The love, the Love of Mankind! The gold, the true gold, not every lab, not every dog, that was why it was so precious, so priceless. But now? NOW it was a matter of public record! Indisputable! No longer a thing hidden to be guessed at or poked with a stick. Now it was on display like a monument for all the world to see! Golden was the hero during a massacre that would become legendary! His bravery would become a lesson of history!

This reflection began to turn his deep, dark grief into a golden, costly awe.

'Oh! Golden, you brave dog! You set the benchmark so high! How can we follow you? How can we make YOU proud of us? I'm so scared, buddy. Do I have to say it? I can't fight them on my own. The military ... where are they? I need help! I don't know what to do ... I can't do this on my own.'

He rolled over crying. More than the sleeplessness and the responsibility it was the releasing of this overwhelming sorrow that now drained him completely. He closed his eyes thinking of the ceremony tomorrow, the repairs, the

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fortifications, the food, the contingency plans. He had two clear ideas as he was falling asleep:

One was his goodbye. He would look into everyone's eyes, possibly for the first time, probably for the last time. And own up to their failed expectation. He would not say a word more than they could bear to hear—but his heart would break for every person he let down. It was the kind of ambitious thoughts you only have when you are half asleep.

And two, he would write a speech of tribute to Golden to tell people, to tell the humans, that *Dogs Love People!*—love them enough to die for them! Is there a greater love than this? To lay down your life for someone? And in this act from Golden was living proof that this love, this kind of divine love lived in his heart too!

Was it just too much? Was he trying to vindicate himself vicariously through Golden's own heroism? Was it really necessary to tell people these weighty things? If someone doesn't love you back, does not that make your love and loyalty all the more pure? Would the people calling him an inept leader and calling the crew 'that bunch of stupid animals' feel ashamed? Would they repent of their misguided prejudice? He didn't want to shame them, just to tell them ... just to tell them how much he loved them and how much hurt he felt at their unspeakable loss ... and that Golden died a hero—*their* hero.

Just as he was dozing off, as the hour had passed the gardener robots dimmed the lights again putting the park back on its proper nighttime cycle and John saw the flicker, but was unable to fight his own exhaustion and slipped off to sleep.

He was startled awake more than six hours later by the announcement over the settlement-wide intercom that woke him with his heart pounding: "Good morning citizens, friends, community! The mercy ships' medical-evacuation convoy has arrived in orbit and will be docking in under 30

## STARQUAKE

minutes. We will begin loading cargo in loading bay 18/19 after crosscheck within about one hour, but we will only begin loading passengers at around 6 pm, in docking bays 10/11, families with children are welcome to board first. Please check with your residential coordinators. All assisted medical evacuees will be accepted in bays 17/20.

“Please don’t be late for our departure ceremony at 12 noon. We will miss you all, and it will be our last chance to assemble as a community. Good morning!”

Shaking the sleep from his head John grabbed his belt and the rest of his clothes; he was still covered in a lot of dirt and smelled like swamp-mud, so he ran to the nearest washroom, took a quick spray, shook, re-dressed, and ran back to his own quarters, which were not damaged in the attack as they were in a protected part of the main control deck-house complex.

As he physically ran back to the main deck and he mentally ran over in his mind the key points of his address to honor Golden ... hero, sacrifice, love ... it would be a redemption and just thinking of it lifted his weary soul. Then down to the market, the agora, to see how the setup was progressing for the ceremony, then over to the docking bay to welcome the mercy ships just as they were opening their air locks.

## 09 NO MERCY

The fifty or so Mine and Colony officers and (acting) head civil administrators assembled at the port gate, all dressed in their formal officers’ uniforms and stood at attention until the landing crew disembarked. The procedure to open up the ship was very short once the landing sequence finished,