Interstitial

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Echo huddled under his thin blanket, clutching the pillow to his head and feigning sleep as footsteps marched down the aisle towards his bunk. His chip told him it was just after three in the morning. He was horribly tired, his blood glucose low, his muscles poisoned by fatigue. Ever since the Copernicus Alliance had taken Little Tokyo, some four hundred hours ago, South Pole had been on a war footing. Purity squads had rounded up and executed recalcitrant techs in an orgy of self-righteousness. The upper levels had been evacuated, the greenhouses stripped, the defense systems mobilized. After finishing a twenty-hour shift, Echo had collapsed into his bunk without even making a stop at the canteen, but he was too wired to sleep.

The footsteps drew closer and closer, undeniably vectoring on Echo's bunk. His heartbeat spiked as the thin Mylar curtain he had tacked up for privacy was ripped aside. Light washed red across his squeezed eyelids. Someone spoke into his ear: a harsh and familiar voice, the voice of his brother, Captain Achilles.

"Rise and shine, Dave, you unrecycleable piece of shit. Time to go to work."

Echo was eighteen, the median age for techs. He had been working since age twelve; only his eldest brother still used his birth name. Captain Achilles had five years on him, a grizzled veteran who had survived two skirmishes with patrols from the Copernicus Alliance. He had been a bully when both of them were being raised by their dam, and was a bully still. He pulled Echo out of his bunk into the freezing dark of the dorm, told him to leave his boots because there was no time to put them on, and to leave the rest of his stuff as well.

Captain Achilles was bulked out by an armoured p-suit with a chameleon paint-job, its helmet hung from the utility belt. Echo was wearing only thin underalls, and because it was the middle of the long lunar night, power in the dorms was strictly rationed. It was easily ten below freezing; the cold of the floor scorched the tender soles of his bare feet. Echo said, between clenched teeth, "You fucker," and was rewarded with a cuff to the back of his head.

"I got you a prime job," Captain Achilles said, pushing Echo ahead of him through between tiered bunks. He was a very tall man, with close-cropped hair and a long thin face whose pronounced chin always looked swarthy. He added, with calculated nastiness, "You're going to love it."

Echo knew that Captain Achilles was crazy. All soldiers were stone-cold crazy. It was the price of eternal pumped-hard vigilance, overdoses of testosterone and steroids, and the combat programs in their heads. Since they weren't yet officially at war, this had to be some deeply dangerous bad-ass mission, just the kind of thing a soldier would love. He said, "Oh shit. You bastard. You're putting me on the front line."

"You techs are all the same. Snivelling worms with no guts."

"You mean no backbones," Echo said, which earned him another cuff. By now they were bouncing along narrow corridors lit only by red emergency lights, as if Echo were a virus being chased down a capillary by an implacable leucocyte. The cuff knocked Echo to the floor. He ricocheted back up, and before he could wipe his bloody nose was caught in the back of the neck by Captain Achilles and pushed on.

"You will do your job and you will do it well," Captain Achilles said, "and you will do it without smart chat or asking damn fool questions. I'll make the family proud of you yet."

"They'll weep c-crocodile tears and forget me as soon as I've been recycled."

"Survive this, you'll be a hero. You owe me big, little brother. Just for once, you'll be doing a real man's job."

"C-can I at least ask if we are at war?"

"Not yet. Soon. We've already pulled a move on that pirate's nest of slant eyes and traitors, and if we're lucky they'll try and retaliate. Then we'll be at war. Meanwhile, Dave, you've been selected for special duties."

A phrase which jammed an icicle in Echo's heart. Soldiers loved special duties. It meant high danger and almost certain death. It was the one thing that techs tried to avoid at all costs. He said, "Let me guess. We've taken Little Tokyo from the Copernicus Alliance."

"Who told you that?"

"I worked it out just this minute."

"Yeah?" Captain Achilles clearly didn't believe this. "You're in the army now, bro. No need to think."

Echo said, "Thinking is what I do for a living. I'm right, aren't I?"

"We took it fifty hours ago, and secured the perimeter. It's ours, bro. There's stuff they missed, and that's why worms like you are needed. This is a chance to make the family look good, Dave boy. A chance to redeem yourself."

"I'm needed for defense work. That's more important than some special op."

"I know what you were working on. Those old pop-up radar-guided missiles? Last ditch stuff we will never need because we are strong and we will keep the enemy far below the horizon at all times. This is special, bro, this will make you famous."

Captain Achilles shoved Echo through a pressure curtain into the brilliant glare of a staging lock. It was almost completely filled with a dozen soldiers in p-suits, and the coffin-shaped metal boxes which contained their gear. The soldiers all gave Echo the cold eye, as if wondering exactly what his guts might look like, and where would be the best place to draw them out. This was the Greek crew, Captain Achilles' command, with names like Perseus, Andromeda, Jason and Alexander stitched to the breasts of their p-suits. Most likely, they were already running their combat programs, and Echo tried to avoid making eye contact as, cold and miserable, he climbed into his borrowed suit. It was ill-fitting, the extension joints at elbows and knees loose and baggy, and it stank. The left knee joint was stiff and gave him a comical limp; the helmet visor was scuffed, and half the functions were redlined.

Echo hooked up his backpack, and followed the soldiers through the airlock into a bus. Captain Achilles sat beside him, slipped him a tube of fish paste, and whispered, "You're replacing a casualty on the tech team out there. Don't fuck up and you'll make me proud."

Echo sucked down paste and spluttered, "What kind of casualty?"

"The bitch went crazy. Tried to kill a couple of my men. Can you believe that? They iced her ass straight away, of course."

"Of course they did. It's what soldiers do."

Captain Achilles thrust his face close to Echo's. His eyes were bloodshot and he reeked of male aggression. A hectic butterfly rash from steroid overdose stippled his nose and cheeks. He grinned and said, "You better believe it, little bro."

Echo could feel his cells bloom gratefully as the protein in the fishpaste began to enter his starved system. It was laced with testosterone and steroids and oestrogen suppressant, all going straight to work on him too. He had squeezed the plastic tube flat; now, he unzipped the seam with a thumbnail and licked up the last smears of paste.

Captain Achilles, watching in disgust, said, "Don't they feed you in your nasty little warren?"

"Of course not. Soldiers get all the real food."

"We need it to keep strong and fit."

"And stupid. I bet your people didn't even try and find out why that poor tech went crazy before they iced her."

Captain Achilles gave Echo a tab. "That's your job, bro. Stay sharp and do good work and maybe you'll get back in one piece."

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The tab, high-grade military issue meth, was kicking in when the bus boosted with a bone-deep roar and bruising acceleration. The meth gave everything a harsh, heightened edge, and Echo's thoughts tumbled like a rain of razor blades. His p-suit couldn't access the bus's video system, but he was right in the back of the cargo tube, and by pulling his harness to its full extension he could lean over and look out the scratched port.

The full Earth hung in the black sky, white as a sunblinded eye, bright enough to cast shadows across the heavily cratered terrain that was unravelling below the bus's keel. Echo activated the scope on the suit's teevee system, was rewarded with a fuzzy, upside down view of Earth's ice-covered disc. He could just make out the belt of volcanoes along the equator, tiny blotches against a uniform white so blinding it was like staring at the sun.

Fifty years ago, a robot probe, the last sent from the Moon to Earth, had discovered that bacteria and algae were still living around the volcanoes, in hot springs and in water trapped under fresh lava fields. Apart from a few species clinging to deep sea hydrothermal vents, this was the only surviving life on Earth. Humanity's survival on the Moon was just as precarious. When the sun's luminescence had began to decline, and ice had spread towards the equator from the north and south poles, reviving old space flight technologies had taken second place to fighting for dwindling habitable territory. Grandiose plans to crash comets into the atmosphere and raise the carbon dioxide partial pressure to stimulate greenhouse warming had come to nothing.

In the end, only a few thousand people had escaped the great winter. Those in the Yankee Mars base had died out within thirty years, and for two centuries the two dozen bases on the Moon had fought savage wars over dwindling resources. Now, after the Copernicus Alliance had destroyed Little Tokyo,

the last humans alive were in two bitterly opposed bases, one at the South Pole, the other buried deep below the surface of Mare Insularum. Enriched by the biomass looted from Little Tokyo, the Copernicus Alliance would be urging its population to make babies, and would turn those babies into hardwired warriors. In less than ten years they would be ready to begin a final war against South Pole -- so South Pole would have to strike first. Of course, soldiers had never needed an excuse to go to war. It was what they were programed to do.

Echo soon tired of staring at Earth, and withdrew into his own reveries. Despite the blast of meth, he actually fell asleep, and woke only when the bus blew its retrojets and more or less crash-landed near the wreckage of Little Tokyo. All flights were like this: fast and low to escape any autonomous missiles the enemy might have scattered across the surface.

Captain Achilles kicked Echo to his feet, ordered him to pull on his gloves and fasten his helmet, kicked him through the bus's airlock. Like all bases, Little Tokyo had buried itself deep underground, beneath rubble berms and heavy slabs of concrete, but the Copernicus Alliance's burrowing warheads had blown it open like so many hammers smashing into a clam shell. Bits of blackened concrete were strewn for kilometres across the trampled and blasted moonscape. There were pits everywhere, brimful of inky shadows, and the raw scars left by the strip-mining equipment that had pulled out every kilogram of steel from the reinforced concrete and ripped up the solar farm and the greenhouses. The entire population had been killed, either in the bombardment or in the desperate hand-to-hand fighting afterwards, and the corpses had been rendered for their organics on the spot.

The Alliance had completely withdrawn from the wrecked and looted base sixty hours ago, leaving only boobytraps for the scouting party from South Pole to deal with.

"We probably haven't found them all, so watch where you walk," Captain Achilles said as he manhandled Echo towards a rover, where two soldiers were waiting for them. "I don't want to have to go back and find another tech to take your place."

"I appreciate the sentiment. If the base has been stripped, why am I here?"

"Those sons-of-bitches didn't find everything. Get in."

As soon as Echo had clambered into the back of the rover, beside his brother, it accelerated down a ramp of compacted soil into a wide cut-and-cover tunnel. They drove recklessly fast, in complete darkness. From his p-suit's GPS, Echo estimated that they had gone twenty kilometres when the headlights and brakes kicked on simultaneously and the rover slewed to a halt in front of a standard airlock that protruded from a rubble wall.

Echo was shoved inside by the two soldiers and Captain Achilles, and they all cycled through into normal pressure and a chilly but survivable temperature. Menaced by the soldiers' assault rifles, Echo was ordered to strip off his p-suit. Shivering, his nose itching from the wet ash smell of moondust, Echo was pinioned by a soldier while Captain Achilles used a pressure gun to blast a capsule under the skin of his forearm.

"You're going to find out what they're doing down there," Captain Achilles said. His voice was rendered flat and metallic by his p-suit's external speaker; his face was barely visible behind his gold-filmed visor. "Once you're done, pinch the capsule hard; that will activate the radio transmitter."

"Why don't you go down there yourself?"

"Because they'd attack us and we'd have to kill them," Captain Achilles said. "And we don't want them dead because they haven't finished work yet."

Echo tried to smile, although he knew it must look hideously false. "You're scared, aren't you? Scared of techs. You don't understand what we do."

"The people down there have gone crazy. That's why we don't understand them. My advice is that you don't go crazy too."

The soldier who was holding Echo turned him around and shoved him into a bucket elevator strung on a jury-rigged winch. Captain Achilles said, "Work good, bro. Be a man. Do our family proud," and thumbed a fat red button at the end of a hanging cable.

The winch hummed and the bucket fell into a narrow shaft towards a promise of light far below.

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It fell a long way: at least a kilometre. Echo's ears popped twice, adjusting to the increase in air pressure. It grew noticeably warmer; still below freezing, but no longer dangerously so. Echo began to think he might at least live through the ride when the elevator dropped into a huge chamber.

It was a deep cylindrical excavation with what looked like a missile or chimney rising from the rubble floor and reaching all the way to the roof. There were banks of blazing lights, and the bare rock walls had been sealed at tremendous expense with spray-on construction polymer. The missile tube or chimney or pillar -- perhaps it was some kind of huge hydraulic ram, Echo thought -- was shiny black, and scratched and hatched all over, as if attacked by a gang of graffiti artists armed with jack-hammers. It was rooted in a jumble of raw rock, with bits of kit -- cylinders of polymer mix, ration packs and water kegs, a microwave, a recycling toilet -- scattered around. Scaffolding rose up around it, clever, lightweight plastic stuff that constantly shifted and shivered, balancing out the load of the four people who were climbing down to meet Echo, their shadows cast hugely across polymer-sprayed walls.

There were just four techs working on what they called the Artifact: Basic and Syntax, Slash and Port. Syntax was their leader. She explained that it was their mission to understand what the Artifact was trying to tell them.

Echo craned to stare up the dizzying perspective of the pillar's glistening black length. It was clad in some kind of seamless stone coat and radiated an evil cold; he had burnt his hand when he had touched its flank. He said, "You're trying to figure out how it works?"

"In a way," Syntax said. She was a grizzled oldster of forty odd years, almost bald, her face scarred where cancers had been removed, steel plates instead of teeth showing when she cracked a smile. Like the others, she had the shiny-eyed look of someone who has spent far too long on meth. "The marks dug into its surface are code. We're reading it, piece by piece."

"It's a message," one of the other techs said.

Echo laughed. "Like a time capsule? Why would Little Tokyo go to all the expense of burying a time capsule?"

Syntax said, "Little Tokyo didn't make it; they found it. It's a time capsule all right, from the very deep past."

"You mean the American Empire?"

Syntax flashed her steel teeth. "Hardly. As near as we can tell, it's seven hundred million years old."

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After a scout patrol had discovered the entrance to the tunnel, Syntax's small crew of techs had been hijacked from the library and put to work on the Artifact. They were all wired with meth so they could work twenty hours a day, snatching sleep when they fell from exhaustion, sucking food from cold packs while they worked. One woman had gone bugfuck crazy and had jumped on the bucket elevator after it had brought down a case of rations; it had come right back down with her bullet-riddled body, and the others had buried her at the base of the Artifact.

None of the techs trusted Echo because he was so obviously a spy. He didn't blame them. He knew that if he didn't readily give up whatever he learned here, it would be tortured out of him by his brother. The other techs were even more cynical about their fates. They believed that once they had finished translating the Artifact they would all be killed.

"Like Egyptian slaves who constructed the tombs of pharaohs," Syntax told Echo. "Soldiers don't think techs are human. They'll kill us and bury us all when we're done, so we can't squawk about what we've discovered."

She set him to translating a huge block of glyphs carved high up on the Artifact. Her crew had already worked out that the strings of dots and dashes carved deep in the black granite column were binary code, but no one would tell Echo whether they had translated any of it, or what they had found.

He quickly became as obsessed as the others. All techs loved crypto -- it tickled their maths programs. Echo worked until he dropped from exhaustion, ate only when the pain in his stomach cut through his focused concentration. The cold, bone-dry air sucked moisture from his skin, and although he was constantly taking sips from a bladder of distilled water, his mouth felt as if it had been packed with salt. His world shrank to the problem at hand. He hardly noticed the other techs, working away on their separate projects above and below him like monks in isolated carrels. When Port and Slash had a fight over use of one of the computers, he watched for a few minutes and went back to work as soon as Syntax swarmed down to break it up.

Echo took pics of every square centimetre of the glyphs, loaded them into one of the disposable computers, ran dozens of decryption programs, started writing his own when nothing out of the box cracked the code. He began to think that he had been given a piece of junk info to keep him harmlessly busy, but there was also a nagging sense that he was missing something familiar and obvious.

On one of his food breaks, he noticed that Basic, the youngest of the techs, was picking about amongst the rubble at the base of the Artifact, catching and zapping the tiny motile cameras which the soldiers used to spy on them. Echo joined in, taking pleasure in outsmarting the cameras' hardwired cockroach evasion routines. After a while, Basic said that she was only doing it because it helped her think. Even if they got all the cameras, the soldiers would just send down more.

Echo smiled, tasting blood as his dry lips cracked. "Maybe there's a better way. You got any construction polymer kit left?"

His voice was a rusty croak; he hadn't spoken since Syntax had showed him where to start work -- more than thirty hours ago. He wondered if the war with the Copernicus Alliance had begun. Somehow, it didn't seem to matter.

The girl shrugged. "Sure, I guess."

Basic would be pretty, Echo thought, if she was given a couple of baths and about a month's sleep and another month on a proper diet, if her stringy hair was washed and cut and the sores on her face treated. Techs weren't allowed to have children -- that was the prerogative of successful soldiers -- but there were plenty of unofficial marriages amongst them. For the first time, he was aware that he stank like a

pharm goat, that his underalls clung greasily to his greasy skin.

He said, "There's this neat trick I know. Want to help?"

He showed Basic how to mix up the ingredients of construction polymer in proportions that were radically different from the instructions. Sprayed on to the plastic liner of the crypt, the stuff stayed sticky, a trap for the roving cameras. Then he and Basic went on a serious bug hunt, and the other techs joined in. When the soldiers realized what was happening, more cameras were sent crawling down the walls, but these were trapped in the wide sticky band of polymer. Then the soldiers tried dropping cameras, but the five techs methodically stomped or zapped the hapless critters before they could find shelter. After that, a few cameras were lowered on diamond thread, but any that were dropped too low could be zapped, and the rest were too high up to be able to see much.

After the great bug hunt, the other techs still maintained a frosty politeness towards Echo, but they relaxed their rule about discussing their work. Sometimes they even talked to each other instead of using their covert librarian finger language, and Echo (who knew the basics of finger language, but couldn't follow their practiced, high-speed flurries) began to pick up clues about the Artifact.

It was a chunk of basaltic granite shaped by some high temperature process that had fused its exterior to a glassy sheen as hard as diamond. A mining team from Little Tokyo had found it by accident, while digging for the remnants of an iron meteorite. After Little Tokyo had been overrun, the Copernicus Alliance had either failed to find the Artifact, or hadn't realized what it was. Since most of the Alliance's population were soldiers, the latter was most likely.

Hundreds of thousands of glyph strings had been cut into the Artifact's surface. The shortest ones had been deciphered -- basic stuff about Earth and the Solar System, biochemistry, fundamental mathematical principles. There were pictures, too, decoding into one hundred ninety-two by one hundred ninety-two pixel grids. Echo persuaded Slash, a dour young man with a badly scarred bald head, to show him a map extracted from one patch of code, although it didn't look like any map of Earth Echo had ever seen.

"That's how it was back then," Slash said. "All the continents were lined up in this single band along the equator. It confirms the dating we got from thermoluminescence and radon decay."

Echo was struck with a sideways bit of associational logic. "Show me where you got this from," he said.

An hour later, he had cracked the chunk of code he had been assigned.

It was a movie, highly compressed by pasting every bit of non-moving background into each frame instead of generating fresh code, and recycling common motion elements from a palette stuck at the front end, mixed up with instructions on polygon types, greyscales, and scan rates.

It ran for just under a minute, black and white, fourteen frames a second, one hundred ninety-two scan lines, as low rez as stone age teevee. Echo looped it and played it over and over. He fell asleep with it still playing, woke to find the other techs watching it raptly.

It showed a thing like a half-squashed crab built out of bubblewrap sidling up to the camera, slowly turning on a fringe of tiny legs. At what might be its front end was a bug face above a rack of crushing and chiselling and biting mouthparts like an organic Swiss Army knife; the camera or whatever had taken the movie zoomed jerkily in on the mouthparts at the end, as if their frantic twitching was significant.

"There's your alien," Echo said.

"It isn't an alien," Basic said abstractedly, pushing greasy hair away from her eyes as she leaned in, watching the loop start over. "Look at that recycled critter dance."

"It doesn't seem to have eyes," Echo said.

Slash tapped the screen of Echo's computer. "There are apertures all around the rim of the shell. Like pinhole cameras. We have the gross morphology of the boogers from other chunks of code."

"Just stills," Port said, giving Echo a challenging look. He was a rangy fellow with a wolfish look, pale as a ghost, long wispy hairs at the corners of his mouth. "Stills and diagrams."

Echo said, "I'm not pissed. I know you held stuff back from me, and I would have done the same in your place. So you call these things boogers?"

The other four techs looked at each other. Syntax said, "There have to be dozens of loops like this in the code. You did good, Echo."

"I didn't think it would look like a crab," Echo said.

"It doesn't," Slash said. "Not exactly."

"Well," Echo insisted, "it isn't a very alien-looking alien."

The other four techs looked at each other again.

Echo said, "I'm not getting out of here alive, right? I might as well know what I'm gonna die for."

Syntax said, "It isn't exactly an alien. It came from Earth, just like us. It seems that everyone got the history of life on Earth wrong."

Syntax did most of the explaining, with the others chipping in now and then.

The great winter was not the first time Earth had been covered in ice. There had been another great winter seven hundred million years ago, caused by an accident of geology rather than a dip in the sun's luminescence. Breakup of the Earth's only landmass at that time, a vast equatorial supercontinent, had exposed huge areas of what had been interior desert to oceanic rainfall, and chemical weathering of the exposed rocks had locked atmospheric carbon dioxide into carbonates. The catastrophic drop in carbon dioxide partial pressure had meant that less infrared radiation was trapped by Earth's atmosphere. As the mean global temperature fell, ice had begun to spread outwards from the poles, and because ice reflected sunlight, there had been a runaway, unstoppable glaciation, ice spreading south and north across open water and reflecting back more sunlight which cooled the Earth so the ice could spread some more. In only a few decades the whole Earth had been covered in ice and all higher forms of life had been wiped out, including the boogers and their nascent civilization.

Because there was no rainfall and no weathering of rocks, carbon dioxide released by volcanoes had slowly built up in the atmosphere. At last, after millions of years, the equator had warmed enough to begin to melt the ice, allowing water vapour back into the atmosphere. And because water vapour is even better at trapping infrared radiation than carbon dioxide, the global temperature had quickly risen to forty or fifty degrees Centigrade, generating vast hyperhurricanes and continent-sized storms of acidic rain, which had rapidly weathered newly exposed rocks and removed excess carbon dioxide, cooling the Earth and allowing life to flourish once more.

And evolution had begun all over again.

"It was always thought that it took three and a half billion years of evolution before multicellular life arose," Syntax said, "and another half billion years to evolve intelligence. But there was an entire multicellular evolutionary epoch before our own, wiped out by a great winter whose end was the trigger that started our own epoch. Wiped out so thoroughly that not even a fossil was found. The glaciers scraped at least fifty metres of rock from the surface of the land, and acidic rain eroded at least as much again."

"No animals with backbones or carbonate shells seemed to have evolved during the boogers' epoch," Basic said. "Only soft-bodied animals which rarely fossilize. The boogers' shells were made up of millions of cells of pneumatically inflated polymer film."

Slash said, "The boogers' epoch was probably started by the end of a previous great winter, coincident with the appearance of oxygen-evolving photosynthesis. There were at least five cycles of great winters and acidic hothouses. There might have been two or three evolutionary epochs while Earth's atmosphere was still mostly methane."

"Unlikely," Port said. "Biochemistry adapted to reducing atmospheres is too low energy for multicellular life."

"Life that we know about," Slash said sharply, obviously reiterating an old argument.

Syntax hushed them, and told Echo, "The boogers developed spaceflight once their great winter started. In only ten years or so they were more advanced than we ever were."

"But they died out," Echo said.

Syntax nodded. "They left the Artifact as a monument to their epoch. There are maps on it which suggest that there are dozens of other Artifacts on the Moon, probably copies of this one."

Basic said, "The boogers accepted their fate. Only single-celled bacteria and algae survived their great winter. Those were our ancestors. Everything else died out."

"Except maybe the Ediacara," Port said.

"We can never prove that," Slash said.

Port told Echo, "The Ediacara were this very weird group of multicellular animals that were around just after the end of the Precambrium -- at the end of the boogers' great winter. They were nothing like any other known phylum -- those evolved later, in the so-called Cambrium explosion which gave birth to every modern multicellular phylum. The Ediacara could be a relic of the boogers' epoch. They could have survived around hydrothermal vents."

"But we'll never know," Slash said.

"And we'll never not know either," Port said, glaring at him.

Basic told Echo, "The soldiers wanted us to find records of technology that could be used against the Copernicus Alliance, but there's nothing like that here."

"It's no more than a greeting," Syntax said. "A message sent into the future in case intelligent life evolved again. The boogers didn't think like us. They accepted that life was a precarious thing, able to exist only in those interstices of a planet's history between catastrophic events. They were fatalists."

"I think they were a lot like us," Basic said. "People put messages from Earth on early deep space probes

like Pioneer and Voyager. Those were sent into interstellar space rather than the future, but the intention was exactly the same."

"In the end it doesn't matter," Port told Echo. "We can't get out of here."

"When the soldiers realize that there's nothing useful here they'll kill us," Slash said, "but they'll let you live."

"Nothing useful?" Echo laughed, and tasted blood from his split lips. "You're thinking like soldiers. I don't blame you. The soldiers took over long ago. We all think like them now, and all we think about is survival."

"You're working for the soldiers," Slash said. "Don't deny it. You're a spy. That's why you were sent here."

"My brother and sisters are all soldiers," Echo said. "All of them are ashamed that I became a tech, but my oldest brother took it personally. That's why he sent me here. He wanted me to do a soldier's job because that might make me into a soldier. But once you've been made over into a tech that's what you are."

Echo tapped his head. "At first you run the programs, but pretty soon they start running you. It's the same with soldiers. They can't help what they are because they were made that way, but it's our fault that we let them take over. I looked up the records once. Hardly anyone does that now. We're too focused on the present, on survival. In the last two hundred years the proportion of soldiers increased every time we've gone to war against another base, and remained at the same level high after the war ended, until the next war pushed the proportion even higher. The soldiers are in charge now, but we were in charge before the wars began. We used to set the agenda.

"And you know what? Even now we're stronger than soldiers. We face up to the truth. We can see what has happened to the human race. As resources decreased, aggression between the bases increased. It was inevitable. We'll fight the Copernicus Alliance and either they'll beat us or we'll beat them, but in the end it won't matter who wins. Because after the last battle there will be no more resources to grab, and the victorious base will dwindle and die out, or tear itself to pieces in civil war. We'll have lost everything that makes us human. We'll have become as mindless as a nest of ants. Maybe we can't survive until the Earth warms again, but we can die with dignity. That's what I've learned here. We'll beat the soldiers, and we'll build our own Artifact. And in half a billion years perhaps some new species will understand what we achieved. What we were."

The other techs were smiling. Echo felt blood heat his face as his sudden passion turned to embarrassment. "Shit," he said, crestfallen. "You already know that."

"We're techs too," Syntax said.

"The woman who died," Echo said. "She wasn't crazy, was she?"

"We drew lots," Port said.

"And she lost."

"No," Syntax said gently. "She won. We knew the soldiers would send down a replacement because we were one person short of a squad. That's how soldiers think. And we knew that they would send down a spy."

"Someone with a way out," Port said.

"Of course, we weren't sure if he would help us," Slash said.

"We knew we could get him to help us," Basic said, "because he would be a tech, just like us."

Echo put his hand over the bruise on his forearm, where the capsule had been inserted. "Of course I'll help you. Just tell me what I have to do."

##########

When everything was ready, when everyone was in position and the lights had been turned down, Echo pinched the capsule in his arm. There was a moment of sharp pain as its acid leaked out and created a charge to power the tiny radio transmitter. Echo sat on a cold slab of rock in the semi-darkness, and waited.

An hour passed. Halfway through the second, dozens of diamond wires dropped down almost to the ground, some with the cameras at their ends, some with glaring lights that spun like mad stars. Ten minutes later, the bucket elevator came into view high overhead, descending past the black flank of the Artifact. Echo stood up and backed away as it fell towards him.

Captain Achilles swung over the edge of the bucket before it grounded, surprisingly agile considering he was wearing an armoured p-suit and toting an assault rifle. His voice blared at full volume through the p-suit's external speaker.

"Where are they! Are they dead!"

Echo raised his hands. He felt very calm, although his heart was beating quickly and lightly. Its rapid pulse tremored in his fingertips. He said, "Not exactly."

Slash and Port stood up behind Captain Achilles, throwing off their dust-covered blankets, raising their hoses. Captain Achilles managed to half-turn before they started to spray him; arms already stuck to his sides, he fell beneath falling sheets of hardening polymer. Echo bounded forward and ripped the antenna from his backpack.

The first part was over.

The five techs, working with feverish haste, blinded the cameras with polymer, loaded kegs of polymer mix into the bucket elevator, packed them with crude gunpowder made from rations burned to charcoal, nitrates from the recycling toilet and sulphur from a couple of lamp batteries. Slash and Port lashed themselves to the underside of the bucket with strips torn from their underalls and, with practiced synchronization, Echo pressed the return button in the same moment that Syntax lit the gunpowder-soaked fuse.

The fuse fizzled merrily as the elevator slowly rose towards the slot in the chamber's roof. Echo found that he was counting silently, and wondered if they'd got the fuse length right. It had been difficult to work out how the elevator's travel time would be affected by its load. Too long, and the soldiers would have time to stifle it; too short, and the surprise package would blow prematurely.

He was still counting when the elevator, with the two half-naked men swinging beneath it, vanished into the shadows high above. A minute passed. Echo began to think that it had all gone wrong -- and a dull thud shook dust from the roof. He and Syntax and Basic whooped and hugged each other, broke apart when they heard a ragged burst of gunfire.

Silence. Then a body dropped out of the darkness, slammed against the black flank of the Artifact and tumbled down, arms and legs akimbo, landing with a horrible wet broken noise on a slab of rock. It was

Port. He had been shot in the chest and face. The three techs were still staring at him when the bucket elevator started back down. Slash was standing on a freeform sculpture of solidified polymer. Only then did they know that they had won.

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"We'll kill all of you," Captain Achilles told Echo.

The techs had used solvent to clean polymer from his rifle, and more solvent to free him. They had made him shuck his p-suit at gunpoint, and then had tied him up. He lay on the ground in his underalls, arms lashed behind his back, legs drawn up because his ankles were tied to his wrists. He glared up at Echo and said, "Kill me now, bro. Because I mean to kill you."

Echo said, "We'll leave you and the other two here, at the bottom of the shaft, no p-suits, no way of contacting the outside. Just like you left us. The rest of your soldiers will come and find you, sooner or later, and meanwhile you could do worse than study the Artifact, and think about everything I've told you."

"Those lies aren't worth a second's thought," Captain Achilles said. "How do you know your new friends are coming back? They've left you here with me, Dave boy, because you're a spy."

"They'll be back."

Basic was guarding the soldiers who had been caught like flies in amber when the construction polymer had been blown all over the platform at the top of the shaft. One had managed to half-free his arm in the instant before it solidified around him, and he had shot Port. At first, Slash had wanted to kill the two soldiers for that, but his anger had quickly subsided into sullen determination. Techs weren't killers. He and Syntax had taken the soldiers' p-suits and had driven off in the rover to steal the bus. Syntax had been a mechanic before she had been transferred to the library. She and Slash would fly it in over the top of the chamber, blast into the cut-and-cover tunnel and bring in spare p-suits.

"If they do manage to steal the bus, they'll run away," Captain Achilles said, "but most likely they're already dead. Free me, bro, and I'll save your ass when my people come looking for me."

"They'll come back," Echo said.

"Suppose they do. What will you do if you reach South Pole? Kill all the soldiers?"

"There won't be many soldiers left at South Pole," Echo said. "There's a war on. And if we have to fight, we'll be fighting inside the base, a place techs know better than soldiers. That's what happened at Little Tokyo, isn't it? After its techs found out what the Artifact was for, they rebelled against the soldiers, and the Copernicus Alliance saw its chance and finished them all off. And now the same thing is happening at the Alliance's base, because their techs found out about the Artifact too.

"You thought you could contain us, bro, but you were as wrong as all the other soldiers. We're going to tell the other techs about what we found here, and we're going to ask them whether they want humanity to die out in a futile war, or whether we should work on a suitable memorial instead. You could help. All the soldiers could help. Once the war against the Copernicus Alliance is over, there will be no more enemies to fight, nothing more for you to do. Tell me that you'll think about helping me and I won't leave you here."

Captain Achilles made a tremendous effort and managed to arch his back so he could spit at Echo. He missed, and glared at Echo with a mad, bloodshot eye.

"That's what I thought," Echo said sadly. "Soldiers can't help being soldiers. It's all they can do."

"You're as crazy as the others."

High above, shadows swayed across the flank of the Artifact as the elevator descended towards them. Echo stood up.

"Here come my people," Captain Achilles said. "Last chance to ask for my help, bro."

"I don't think so," Echo said.

"If you're so sure, why are you holding on to the rifle like that?" Captain Achilles laughed. "Suppose you get out of here, suppose you even get to South Pole. I bet you don't even know how you're going to get past security."

Basic leaned out of the swaying bucket, waving madly. Echo waved back, and threw the rifle away. "We're techs," he told the soldier. "We'll think of something."