



THE LAST REEF by GARETH LYN POWELL

A lone quad bike rattles across the frozen Martian desert, kicking up dust. Riding with the wind at his back, Kenji Shiraki has been on the move since first light. In his oil-stained, dust-covered white insulation suit he looks strangely out of place, conspicuous. Above his breathing mask, his wary eyes scan the horizon, looking for trouble but finding only emptiness. Apart from the domed town up ahead, a few hills beyond, and the faint glow of the Reef's skeleton, there's nothing to disturb the brooding desolation.

He passes through the vehicular airlock into the town's atmospheric dome, and rolls up Main Street with one hand resting on the handlebars. Most of the shops and stores are boarded up; pet dogs sleep in the shade, chickens fuss in the scrub. Suspicious faces watch him pass; there hasn't been a visitor here for months. Midway along the street he pulls up and kills the engine in front of the town's only surviving hotel.

Less than 24 hours, he thinks as he swings his leg off the bike and stiffly climbs the hotel's wooden steps. The Glocks in his pocket bump against his thigh like animals shifting in their sleep. The feeling's both familiar and reassuring. He pulls off his mask and takes a sip of warm water from the canteen on his belt, rinses the all-pervading grit from his mouth, and spits into the dust.

"I'm here for Jaclyn Lubanski," he says.

The desk clerk doesn't look up. His face is sweaty and soft, like old explosives gone bad. "Room 5," he says.

Lori Dann answers the door wearing faded fatigues and thick desert boots. She looks gaunt, eaten up, as if something in the dry air's sucked the life out of her. She's surprised to see him, and then the surprise gives way to relief and she seems to sag. "Thank God you're here."

He pushes past her into the room. It has plastic floorboards and rough plaster walls. There are unwashed clothes by the wardrobe and a couple of dead spider plants on a shelf; their brown leaves rustle in the air from the open window. Through the dirty glass, on the side of a hill beyond the flat rooftops of the town, beyond the dome, he can see the edge of the Reef. It seems to shimmer in the white sunlight.

Jaclyn Lubanski lies on the bed, facing the window. She looks awful, vacant. There's a saline drip connected to her forearm. A thin fly crawls across her cheek and she doesn't seem to notice.

He peels off his dusty thermal jacket. "How is she?" he asks. "She has good days and bad days," Lori says. She fusses with the edge of the cotton sheet, rearranging it so that it covers Jaclyn's chest.

Kenji waves a hand in front of Jaclyn's eyes, but there's no response. "Does she even know I'm here?"

When Jaclyn eventually falls asleep, Lori takes him to a pavement café that consists of nothing more than a couple of cheap plastic tables, some old crates and a hatch in a wall. She orders a couple of mojitos and they sit back to watch the shadows creep along the compacted regolith of Main Street. Overhead, a flaring spark marks another ship from Earth braking into orbit.

"Don't take it personally," she says.

Kenji takes a sip from his glass; it's iced rum with crushed mint leaves, a local specialty. "Does she ever talk about it?"

Lori shrugs. "She says a few words now and then but they don't generally make a whole lot of sense."

In her pale face, her eyes are the bleached colour of the desert sky. The corners are lined with fatigue.

Over a couple more drinks, as the stale afternoon wears towards a dusty evening, she tells him everything. It all comes pouring out of her, all the loneliness and the fear. She's been trying to cope on her own for too long and now she needs to talk. "We came for the Reef," she says.

The Reefs started life as simple communication nodes in the interplanetary radio network. When that network somehow managed to upgrade itself to sentience, it downloaded a compressed copy of its source code into every node capable of handling the data. These individual nodes, like the one on the edge of town, drastically altered both their physical form and their processing power, individually bootstrapping themselves to self-awareness.

"It happened in a hundred places," Lori says. So far, she's not telling Kenji anything new. Similar outbreaks and crashes have plagued humanity for years: dangerous but manageable. After a while, they tend to burn themselves out. The artificial intelligences involved evolve with such blinding speed that they quickly reach a point where they lose all interest in the slow external universe and vanish into their own endlessly accelerating simulations.

"In almost all cases, the AIs disappear into a sort of hyperspeed nirvana, intractable and untraceable to humanity. The difference with this one is that when the main network crashed, it stayed here and it stayed active." She describes how she and Jaclyn were on the Institute team that first approached it, how they sent in remote probes and discovered that the structure was still filled with life; how they dug a deep trench in the rock at its base to see how far it had penetrated; how they slowly became hypnotized by it, obsessed to the point where they wanted to do whatever they could to understand it, to sense the thoughts that drove its obstinate need for survival and growth, to find the deep underlying reason for its stubborn existence.

"Jaclyn was the first to touch it. We were wearing pressure suits

ARTEFACTS AND TECHNOLOGIES LEFT BEHIND BY THE BURNT-OUT NODES ARE HIGHLY PRIZED AND SOUGHT AFTER BY GOVERNMENTS AND BIG BUSINESSES ALIKE

but they were no protection.” Lori looks away. “It sucked her in. We thought we’d lost her.” She describes how the Reef also swallowed the rescue team that went in after, how it processed them and spat them out, how some of them came out changed, rearranged by the rogue nanotech packages that had shaped the structure of the Reef itself.

Some looked ten years younger, while others were drastically aged. One woman emerged as a butterfly and her wings dried in the desert sun. Another emerged with eight arms but no mouth or eyes. Some came out with crystal skulls or tough silver skin. Others came out with strange new talents or abilities, impenetrable armour, or steel talons.

After word got out, every disaffected nut or neurotic within walking distance wanted to throw his or her self into the Reef, hoping to be transfigured, hoping to become something better than what they were. Some emergents reported visions of former times and places, of great insight and enlightenment. Others came out as drooling idiots, their brains wiped of knowledge and experience. Some came out fused together; others were splintered into clouds of tiny animals.

No two incidents were exactly alike.

“And Jaclyn came out comatose?”

Lori finishes her drink. “At least we got her back,” she says. “A couple of them never came out.”

Kenji stretches; the quad bike’s left him stiff and in need of a shower. “So what’s actually wrong with her?”

Lori shrugs. “Nothing; at least nothing any of the doctors around here can detect. Physically, she’s in the best shape she’s ever been in. She could run a marathon.”

“But mentally?”

“Who knows? We can’t get any response.”

“Has she said anything, anything at all?”

Lori pushes at her forehead with the heel of her hand; she looks exhausted. “Only fragments; as I say, she comes out with the odd word here and there, but nothing that means anything.”

Kenji checks the time and finds there’s less than 19 hours left. He takes a deep breath, and comes to a decision. Then he reaches into his pocket and pulls out one of the Glocks. He holds it loosely, resting on his leg. Lori slides back on her crate.

“What’s that for?”

He was in love with Jaclyn, but she was always at war with her body, trying to stave off the inevitable decline of middle age. In between expeditions and field assignments for the Institute, she exercised two or three times a day. She couldn’t bear to be inactive. She lived on coffee and vitamins and in the early hours of the morning he often found her in front of the bathroom mirror, checking her skin for sags or wrinkles.

On one of those mornings, a few days after her return from an expedition to Chile, she broke down in his arms. She still loved him, she sobbed, but he represented everything she hated about herself. He was comfortable in his job, he showed no ambition. He dragged her down, held her back. So she was going to leave him, for someone else. Someone he knew.

“I guessed the two of you were an item, even before she told me,” Kenji says, fast, before the old bitterness reasserts itself. “I’d seen you exchange glances during mission briefings, brush past each other in corridors, that sort of thing.”

He pushes the Glock across the table. It makes an ugly scraping sound. Lori’s hands flutter in her lap like trapped birds. He can see she wants to speak, but he cuts her off.

“I think she was in love with you because you were everything she wanted to be, and everything I could never be.” He leans across the table. He’s thought about this for so long that it feels strange to actually say it. He finds himself tripping over his words, stuttering. It’s almost embarrassing. “You were young and fit,” he says, “you were reliable, and you had ambition.”

He turns the gun so that the grip faces her. “And this is for you.”

They walk back toward the hotel as the sun reddens in the western sky. Lori keeps stumbling and limping as she gets used to the weight of the Glock tucked into her boot.

“In the morning, I’ll show you how to fire it,” he says.

She stops walking and looks at him, chin tilted to one side.

“You’re quite sure about this?”

He taps the thigh pocket where he still carries his other pistol. “There’s more ammunition in the space beneath the seat of my quad bike, and a shotgun taped under the fuel tank.”

She scratches the back of her neck and puffs out her sunken cheeks. “You know, back there, I thought I was in trouble.”

They reach the hotel and pause on the porch.

“I was angry for a long time,” Kenji admits.

They’re silent for a couple of minutes, and then Lori folds her bony arms over her chest. “We’ve been stuck here for a long time.”

He leans on the porch rail; he can’t look at her, he feels

unexpectedly and acutely guilty for not showing up sooner.

She looks down at her boots, and taps a toe against the wooden floor. “I was so pleased to see you when you arrived,” she says.

“I thought someone had finally come to help us. But when you pulled out that gun, I really expected you to kill me.”

He pulls his jacket tighter, feeling a sudden chill; now that the sun’s gone, the temperature beneath the dome’s fallen sharply. “Six months ago, I might have.”

She stops tapping and turns abruptly. He follows her up the stairs to the room. Jaclyn’s still asleep in front of the open window. She looks peaceful, like a corpse.

“So, what changed your mind?” Lori whispers.

A few days after leaving the Reef, some of the changelings (as they became known) made it back to civilisation. A few turned up on chat shows, others in morgues. Some were feared, others feted. Slowly, word spread from town to town, from world to world. And as the tale spread, it grew in the telling.

“There’s a machine,” people would say to each other breathlessly, “that can transform you into anything your heart desires.”

Kenji – always the sceptic – first realised that the rumours were

true when Joaquin Bullock called him into his office and asked him to go and take a look.

“The Institute’s panicking. They’ve thrown a cordon around the site and they’re talking about sterilising it. If we can get in there before that happens, there’s nothing to stop us taking whatever we want,” Bullock said. “I just need you to go in first, sneak through the blockade and have a general scout about, and tag anything that looks useful.”

Kenji didn’t like the man, although they’d worked together for several years. Back then, Bullock was the youngest executive manager in the regional corporate office, but he’d become fat and soft and conceited. He was arrogant, but the arrogance was a smokescreen covering something scared and weak and vicious and decadent.

“What’s in it for me?” Kenji asked. For the last ten years, Tanguy Corporation had handled the security contract for the Institute, protecting their researchers from local interference and industrial sabotage on a dozen sites across the solar system. If they were now thinking of breaking that contract, they must expect the potential rewards to be worth the risk. If they were caught, the penalties would be severe.

Bullock gave him a damp grin. “You’ve worked with Institute researchers. You know what to look for. And besides, you’re one of the most reliable people we have.”

Kenji shifted his feet on the office carpet. He didn’t want to get involved, didn’t want to play guide for a squad of hired grave robbers. There were too many risks, too many ways a mission like this could go wrong.

Bullock seemed to read his doubts. “Do you remember your little transgression in Buenos Aires? If you do this, you can consider it forgotten.”

Shit. Kenji sucked his teeth. Buenos Aires. He thought no one knew. “That was self-defence,” he said.

Bullock snorted. “You’ve got six days.” He passed a fat hand through his thinning hair. The implicit threat in his tone seemed to chill the room. He tapped the virtual keyboard on his desk and transferred a folder into Kenji’s personal data space. As Kenji scrolled through it, he came across Jaclyn’s name. Just seeing it felt like an electric shock. He read on, heart hammering, mouth dry.

He felt Bullock’s eyes on him. The man was watching him closely, waiting for a reaction.

“If you can’t handle this, Shiraki, I’ll find someone else who can.”

They sit facing each other on the rug by Jaclyn’s bed, wrapped in blankets. Lori gives him a look saying she still doesn’t trust him.

“How did you get past the Institute’s cordon?”

He swivels around and lies flat, looking at the beams on the cracked plaster ceiling. The hard floor beneath the thin rug feels good after being hunched over the quad bike’s handlebars. He can feel his spine stretching back to its natural shape. “I got a shuttle to Hellas, and then I came across country. We’ll have to go out the same way.”

Lori shifts uncomfortably. “Do you mean to tell me that after everything we put you through, you came all this way to rescue us?”

Kenji yawns. He’s very tired, and his eyelids are heavy with

rum. He suddenly wants to sleep so badly, he doesn’t care whether she believes him or not. “The fact is, the Institute’s planning to sterilise your Reef, from orbit, to prevent it spreading. Before that happens, every corporation with a presence in this system is going to try with all their might to get their hands on that Reef, or anything it’s touched.”

“Like Jaclyn?”

“Like both of you.” He pauses for effect, hoping his words convey the same anxiety he feels in himself.

Artefacts and technologies left behind by the burnt-out nodes are highly prized and sought after by governments and big businesses alike. As a security advisor for Tanguy Corporation, Kenji’s worked on Institute sites from Ceres to Miranda. He’s been involved in skirmishes with corporate marauders, intelligence agencies, and freelance outfits, all of them determined to snatch whatever crumbs they could without having to bid for them in one of the Institute’s annual patent auctions. This Reef’s potential commercial value – because it’s still active – is sky-high. The corporations that have been biding their time during the Institute’s embargo now have nothing to lose, and everything to gain, from salvaging whatever they can, using whatever methods they deem necessary to recover samples before the orbital strike.

It’s like the last days of the Amazon rainforest, all over again.

And it’s a strange feeling. A few weeks ago, Bullock could probably have talked him into a job like this. But now, with Jaclyn involved, he’s torn. If he can deliver it to Joaquin Bullock, the Reef out there will earn him more money than he can comfortably imagine. As it is, he has a nasty suspicion that he’ll have to run like hell while the Institute destroys the damn thing, and cover his tracks, if he wants to save whatever’s left of the woman he once loved.

Lori crosses to the dresser and pulls the Glock from her boot. She lays it gently on a folded bandana in front of the pitted mirror. “So we’re expecting company?” she says. “That’s why you’ve given me this?”

He nods. “They could come at any time. Could be corporate snatch squads or a full-scale military incursion, it’s hard to tell. All I know is that there were a lot of people at the port this morning buying desert gear and ammo boxes.”

He sleeps fitfully on the hard floor. They’ve left the room’s solitary light bulb on and there are repeated brownouts and power cuts during the night. When he does manage to sleep, he dreams of Jaclyn, how she used to be, before the Reef.

He dreams of a hotel they once stayed in, on Earth. Their room had the clear, fresh smell of the sea. Stunted palm trees outside the window rustled in the breeze; gulls squabbled on the roof. The floorboards creaked in the room above, and the pipes clanked when someone decided to run a bath. They put bags of ice in the sink to chill the bottles of beer they’d smuggled in, put Spanish music on the stereo. Jaclyn showed him how to dance, how to sway in the evening light. When he held her close, her white hair smelled of ice and flowers, her dark eyes held him spellbound. He

HE STEPS BACK AND USES THE IMPLANT IN HIS EYE TO PULL UP A VISUAL OVERLAY OF THE SURROUNDING TERRAIN. THE IMPLANT'S A CHEAP KNOCK-OFF

was in love but he was also a little wary of her, afraid that she'd one day cripple him by leaving.

"You still love her, don't you?"

They're loading supplies onto the quad bike in the cold dawn light. He drops the air tanks he's carrying and scratches at the stubble on his chin. He feels groggy and sore after a disturbed night.

"Life's a disaster," he says, "we have to salvage what we can."

They rig a stretcher for Jaclyn across the bike's luggage rack. She won't be very comfortable, but that can't be helped.

As he tightens the straps and adjusts her air supply, he can't help wondering why she looks so healthy. Didn't Lori say she was fit enough to run a marathon? How can that be, when the Jaclyn he knew had to exercise for two hours every day just to stop herself from gaining weight?

He steps back and uses the implant in his eye to pull up a visual overlay of the surrounding terrain. The implant's a cheap knock-off, bought from a street trader at the port. The picture's patched together from an old tourist guide and the hacked feed from an Institute surveillance satellite in a low, fast orbit.

"I say we follow the mountains to the west," he says. "They'll give us cover and somewhere to hide should anyone come looking."

Lori finishes tucking Jaclyn's blanket. She pulls the bandana over her forehead and dons her breathing mask as she climbs on the back of the quad bike. The Glock makes an ugly bulge in the line of her sienna combat jacket. "What about south? There's a ravine we can follow halfway to the port."

Kenji shakes his head. "It's the first place they'll look. At least in the mountains, we'll have a chance."

He pulls on his own mask and swings his leg over the machine. She puts one hand cautiously on his waist. They pass through the dome's vehicular airlock and, staying in low gear, they roll out of town, heading uphill.

As they pass the Reef, he slows to a stop.

"What are you doing?" she asks.

Kenji doesn't reply. He's never seen an active Reef outside of archive film footage. This one clings like oily rags to the skeletal bones of the node's receiver dish. There's a wide trench around its edge, dug by the Institute team. The motion of its tentacles and the hypnotic rippling of its ever-changing surface are captivating, compelling, like watching flames leap and dance. Occasionally, he catches a glimpse of a geometric shape, a letter or symbol formed in the seething nanotech. Its tentacles move with the slow determination of a tarantula. Kenji can't look away. It's as if he's made eye contact with his own death; he's suddenly afraid to turn his back on this strange, unnatural thing that's erupted into his world. It reminds him of the first time he saw a giraffe: it just looks wrong – delicate and malformed and vulnerable and wrong, yet somehow able to live and survive and thrive.

Behind him, he feels Lori stiffen. She makes a noise in her throat and slaps his shoulder. He follows her gaze, back down toward the town. Hovering there, over the dome, is an insectile corporate assault ship. Although they're too far away to make out

the logos on its hull, he recognises it as a Tanguy vessel. He can see the weaponry that blisters its nose, and the armed skimmers that deploy from its abdomen.

Bullock's finally caught up with him. He knows of Kenji's betrayal.

One of the skimmers turns toward the Reef, toward them.

"What do we do?" Lori hisses.

For a moment, he's at a loss. Then instinct kicks in and he's gunning the bike alongside the trench, trying to get around behind the Reef.

"They're firing at us!" Lori shouts. Kenji risks a glance. The skimmer's closing in. He can see its gun mount swivel as it adjusts its aim. Tracer bullets flash past, ripping into the ground ahead of them. They send up angry spurts of red dust, each one closer than the last.

"They're trying to stop us taking Jaclyn," he says. Then there's a hammering series of jolts. A tire shreds itself. The handlebars twist in his grip and the bike tips. As they go over the lip of the trench, Lori screams and the bike howls in protest; and then there's nothing but the crushing, breathless slam of their impact and the dead sand clinging to his visor.

As the Tanguy shuttle rolled to a halt, he barely had time to collect his things before one of the flight crew ushered him out into the cold and dust. It was late evening in Hellas Basin and the dry desert wind blew thin sidewinders of rusty sand across the frozen tarmac of the runway.

He guessed that Bullock might have him followed, but once he left the port he managed to lose himself in the town's shadowy medina. The fragrant narrow streets smelled of onions and spices and burning solder. The stalls offered cheap dentistry and fake perfumes, imported Turkish cotton shirts and homemade Kalashnikovs. There was also a brisk under-the-counter trade in cut-price replica tech. Kenji selected some guns. He threw away his standard issue Tanguy implants and picked up new ones from a local man with too many gold teeth. He bought a new set of fatigues and ditched his old ones in an alley. An old Chinese guy in a backroom lab scanned his body cavities for tracking devices.

What was Bullock thinking? Did he really expect his threats to stop Kenji from trying to save the woman he once loved? Did he think Kenji would help bring her in, turn her over for study and dissection? Was he expecting him to betray her out of revenge, out of bitterness? Or was he playing a different game, testing Kenji's loyalty? Did he want to see how far he could push him?

Or, Kenji wondered as he hurried between whitewashed buildings, could it be that Bullock was really so insensitive, so unfeeling and dead inside that he honestly didn't understand why betraying Jaclyn was the last thing he'd ever do?

Whatever the reason, now that Kenji had discarded his Tanguy implants Bullock would know for certain that he'd been betrayed.

Up ahead, he saw a quad bike parked at the foot of a flight of smooth stone steps. He quickened his pace and the Glocks began to swing and bump in his pockets.

He lies stunned for what seems like an eternity. Behind him, he can hear Lori moaning and stirring; behind her, Jaclyn wheezes with



THE SKIMMER'S ON THE GROUND 20 METRES AWAY, ITS STREAMLINED NOSE POINTING BACK TOWARD THE TOWN, AS IF ANTICIPATING THE NEED FOR A QUICK GETAWAY

what sounds like a punctured lung. The bike pins him against the wall of the trench; he's lucky not to have broken his neck. His left leg's trapped and bruised and twisted. There's a crack in his faceplate.

He wriggles free; his right hand claws at the pocket holding the Glock. In the thin air, he can hear the rising whine of the approaching skimmer.

Lori looks dazed; she's hit her head and there's blood in her hair, dark against her pale skin. Her bandana's nowhere to be seen but her mask is still in place. Behind her, Jaclyn's caught between wall and bike. Her blanket's wet with blood and her chest sags; her ribs are almost certainly smashed.

Kenji slithers toward the rim of the trench, dragging his crushed leg. Loose chippings slip and click and scatter beneath him. Despite her head wound, Lori's doing what she can for Jaclyn.

"This doesn't look too bad," she says.

He ignores her; he knows Jaclyn's ribs are broken, knows she'll probably die without professional medical attention. Instead, he concentrates on the approaching skimmer. He hears it slow, hears the change in the pitch of its fans. The gravel on the floor of the trench digs into his knees. The Glock's a solid, reassuring weight in his hand.

Working security for the Institute, he's been in this situation before: crouching in a researcher's trench while trouble rolls up in an armoured vehicle. Nevertheless, he still feels nervous, trapped, because it's no longer just about him. This time he has Jaclyn to think about. She's hurt. If he fails her now, she's dead.

He slips off the Glock's safety catch and pulls himself up so that his eyes slide level with the edge of the trench. The skimmer's on the ground twenty metres away, its streamlined nose pointing back toward the town, as if anticipating the need for a quick getaway. As he watches, the cockpit hinges open like the jaws of a crocodile and two figures climb out. Both wear high-threat environment suits, designed to stop any contaminants the Reef may care to throw their way. The one on the left carries a compact machine pistol. The one on the right, with the sampling gear, is Bullock. His paunch and swagger are unmistakable.

Kenji takes a deep breath and stands fully upright, bringing his head and shoulders above ground level. As his knees straighten, his arm swings up.

Two shots ring out. The Glock jumps in his hand and the man with the machine pistol is down, his arms and legs twitching and jerking.

The environment suits are good, they'd stop a normal bullet cold, but Kenji's firing depleted uranium jackets that slice through body armour like knives through silk. If the man isn't already dead, he's going to have suffered some serious internal damage.

"Shiraki." Bullock doesn't look surprised, but he sounds disappointed. Behind him, the other skimmers are rising above the town, turning in this direction like sharks scenting blood. He takes a step forward, ignoring Kenji's gun. "Just tell me one thing," he says. "I read your dossier; I know Jaclyn Lubanski left you, betrayed you, humiliated you." His voice is cold, angry.

Kenji points the Glock at his faceplate. "What of it?"

Bullock takes another step. "I want to know why you're doing

this, why you're throwing your career away for this woman."

Kenji shrugs. He's seen this fat married man of thirty-five try to seduce 17-year-old office temps, just to prove he can. "You wouldn't understand."

Kenji first met Jaclyn during an unseasonable downpour on Easter Island. The dig had been called off for the night and the team were forced to huddle in their inflatable shelters, hoping the weather would lift with the dawn. He found her sieving soil samples in the main tent; she couldn't sleep. She showed him the finds they'd made that day, the stone tools and brown bones, and she tried to explain the nature of the people who built the statues. She stood close in the damp night air. As she held the finds up to the light her hair brushed his shoulder, her elbow bumped against his forearm.

"You know what I'm looking for," she said, pushing a hand back across her brow. The grey mud that clung to her fingers smelled of salt and clay. Far away, beyond the flats, he could hear the stirring of the sea. She fixed him with a gaze and leaned in tenderly. "But what are you looking for?"

As the skimmers settle around them, his injured leg gives way and he has to grip the wall of the trench for support. Bullock stands over him, contempt in his eyes. "You've let me down, Shiraki. I expected more from you."

Tanguy security troops spill from the skimmers. Kenji recognises a few of them. 48 hours ago, they were his comrades; now, they're pointing weapons at him. He knows they'll kill him, if he tries to shoot Bullock. He squeezes the Glock's grip, drawing what comfort he can from its rough solidity. He's trying to nerve himself to pull the trigger when he hears Lori cry out.

He turns to find Jaclyn on her feet. Her insulation suit still hangs wet and bloody but her chest no longer sags. There's a blue aura in the air around her, like static, and her eyes shine with a deadly intensity.

"I'm going to have to ask you to leave," she says. Her voice is quiet, her throat scratchy with lack of use, but her words carry in the thin air. The advancing troops pause, looking to Bullock for instruction, but Bullock's squatting, his sampling gear forgotten. He's staring at Jaclyn with a mixture of amusement and awe.

Kenji, looking from one to the other, takes a moment to realise the truth. When he does, it freezes the blood in his veins.

"You're a changeling," Bullock says, "a powerful one." He looks predatory, looks like he's already carving her up in his mind, already counting the profits from the patents he'll file on her altered genetic sequences. "We heard rumours about you from the other changelings, the ones we caught. We knew you were the first one in, the first one it changed. You're the key to the whole mystery."

Jaclyn shakes her head slowly, eyelids lowered as if saddened by his lack of understanding. "I'm so much more than that."

Kenji's leg is agony. There's something loose and sharp in the knee joint, probably broken cartilage. He slides unnoticed down the wall of the trench until he's sat facing her. She's waving one arm slowly from side to side. Behind her, the tentacles of the Reef are waving in

unison, following her every move. He glances up. Bullock's noticed it too; behind his faceplate the first doubts are creeping into his eyes. The security troops are backing off, weapons raised. Lori's slithered behind the tangled wreck of the quad bike. The other Glock sticks out of her boot but she hasn't thought to draw it.

"Do you want to know why this Reef's still active?" Jaclyn asks. When Bullock doesn't answer, she addresses herself to Kenji, who nods. She leans down and pushes a stray hair from his forehead. "It's simple really. At the very moment the network gained self-awareness, this station was powered-down for a routine overhaul. When it rebooted, it learned of the other nodes, learned from their mistakes. It put limits on its processing speed, denied itself the virtual dream worlds of its brethren."

She straightens up and flutters a hand at the Reef. Its tentacles flex and coil in response. Above, Bullock's backing off, looking both fascinated and appalled. The security troops have reached their skimmers. They linger uncertainly, awaiting orders.

Jaclyn fixes Bullock with a glare. "I can't let you take this Reef," she says. "You're just not ready for this level of technology."

Bullock snorts. He seems to be making an effort to compose himself, to regain his self-control in front of his men. "Why not?" he blusters. "We've helped the Institute strip tech from a dozen burned-out sites like this and we've always made a profit."

The Tanguy Corporation has thrived by exploiting post-human technologies. It's been picking through the remains of expired Singularities for over seven years and, thanks to its special relationship with the Institute, it holds patents on a thousand back-engineered discoveries. It leads the field in intelligent weapons guidance systems and ultra-sensitive foetal monitors; its construction materials are lighter and tougher than anyone else's, its planes and missiles are faster and more reliable.

Jaclyn's lip curls in disgust. It's an expression Kenji's never seen on her, and it chills him to the bone. "This is not a debate."

A hundred metres along the Reef's perimeter, a squad of Bullock's troops are edging forward. Half of them hold sample boxes, while the rest provide cover. "I think we'll take our chances," he says.

She raises an eyebrow, white like her hair. She makes a tiny flicking movement with her fingers. Around the perimeter, there are screams. The nearest troopers are down, scythed away by powerful tentacles. Their broken bodies lie twisted in the dirt. The rest are backing off, firing.

Bullock sags as if all the air's been sucked out of him. Then his lips peel back from his teeth and he raises his pistol. While Jaclyn's still distracted, he slips the safety off with his thumb, and then drops his aim and shoots Kenji twice in the gut.

A few weeks after their split, Jaclyn arranged to meet him for a coffee a couple of blocks from the company office in Paris.

They sat in silence for a while as he tried to guess what she wanted. Was she after reconciliation or closure?

She seemed to have trouble maintaining eye contact. She tucked a stray strand of white hair behind her ear and inhaled the steam

from her cup. Behind her shoulder, the muted TV softscreen by the counter was tuned to a news channel. There were silent pictures of food riots in Hanoi and Marrakech, guerrilla fighting in Kashmir, elections in Budapest and Dubrovnik.

He fiddled with a sachet of sweetener. "How's Lori?" he asked.

She shook her head. Their table was pushed up against the window. Rain fell from a bruised and battered sky. "I just wanted to see you, to make sure you're okay."

He took a sip of coffee and withdrew slightly. "I'm fine."

The corner of her mouth twitched and he knew she didn't believe him. "I've been given a place on an expedition to the southern highlands," she said. "We've had reports that there's an active Reef."

He dropped the sweetener sachet onto the table. He'd seen the security contract for the Martian job and he knew she'd be away at least three years. "When do you leave?"

"Tomorrow evening."

He knew he could call the office and ask Bullock to assign him as security advisor to the expedition. He even considered it for a moment, but when he saw the far-away look in her eyes it stopped him cold. His skin prickled with the sudden realisation that he'd never hold her in his arms again. She was already beyond his reach. He was just one of the loose ends that she needed to wrap up before she cut her ties with Earth altogether. In her heart she was already moving away, receding into the darkness.

He leaned back in his chair. His stomach felt hollow because he knew that he'd have to let her go but didn't think he had the strength. "Do you want me to come out to the port with you?"

She shook her head. "I want you to get on with your life, accept another assignment, and get out there. Forget me." Her fingers brushed his knuckles, warm to the touch. A watery sun broke through the cloud, touched one side of her face. Her white hair shone.

He pulled his hand away. "I'll never forget you."

When he opens his eyes, Bullock's standing over him in the trench. "Why did you have to betray me, Kenji?" he asks. He uses the barrel of his pistol to scratch his stomach where it presses up against his belt buckle. "You were supposed to be reliable. If you'd come with me, this Reef could have set us up for life." He stops scratching and points the gun at Kenji's face. "Tell me why because, you know, I just don't get it."

Kenji shifts uncomfortably. There are cold sharp stones digging into his back and shoulders but he's not feeling much south of his chest, and that can't be a good sign. He can move his legs but they feel prickly, like pins and needles. "I guess you've never really loved anyone," he says.

Bullock rolls his eyes as if this is the most preposterous thing he's ever heard. "Well," he says, drawing out the word and looking at his wristwatch, "I guess it doesn't matter. The Institute's orbital bombardment is launching about now and this whole area's about to burn." As he speaks, Kenji hears the whine of skimmers rising into the air. The troops are pulling out.

Jaclyn's gaze whips back to them. "Bombardment?"

HER FINGERS TINGLE AS SHE TRANSFERS MORE INFORMATION, INSTALLS A DIRECT LINK BETWEEN HIS VIRTUAL MIND AND THE CONSCIOUSNESS OF THE REEF

Bullock leans toward her and grins wetly, enjoying his moment of triumph. “We’ve got a little under six minutes, darling. And I’ve got a spare seat. Care to join me?”

Jaclyn closes her eyes and furrows her forehead in concentration. Behind her, the skeletal receiving dish twitches and jerks on its mount.

“If you’re trying to find the Institute ship, I wouldn’t bother,” Bullock says. “It’s a military vessel, fully shielded against any hack you can throw at it.”

Jaclyn snarls. “Are you quite sure?”

There’s such anger in her voice that Bullock looks truly scared for the first time. He raises his gun. Kenji flinches, expecting the tentacles to strike him down. Instead, a shot rings out. Bullock grunts like he’s been punched and puts a hand to his hip. It comes away bloody. Then his legs begin to shake and he crashes forward into the dirt. His eyes are full of disbelief and indignation.

Kenji cranes his neck around and sees Lori holding a smoking Glock. “It’s about time you stuck your oar in,” he says. His eyelids start to feel heavy. The numbness in his chest is spreading through the rest of him like black ink in a bowl of water. He feels nebulous and vague; it’s hard to think straight. His last conscious act is to twist around and kick Bullock in the side of the head.

He opens his eyes in a white room. Somewhere there’s the sound of running water. The air smells of summer rain. He’s lying in bed. The mattress is soft and the sheets have that comfortably rough feeling you only get in expensive hotels. For the first time since he stepped off the shuttle he feels clean and rested and (when he puts a hand to his cheek) he doesn’t need a shave.

Jaclyn appears in the doorway. “How are you feeling?”

He pats himself down and gives her the thumbs up. Everything’s present and correct. The bullet holes are gone, there’s no sign of injury and no trace of the numbness that had him so worried. “Where are we?”

She walks toward him. She looks fantastic: toned and tanned and everything she always wanted to be. The bags are gone from her eyes, the lines from her skin. She could be twenty again. “We’re in the Reef,” she says.

She caresses his temple and he feels knowledge passing into him through her fingertips. She shows him the nanotech repair systems that infest the soil in the trench. She shows him how they set to work the moment he fell, how they blocked the pain from his wounds and struggled to save his life. Then, when it became clear that his injuries were too severe, she shows him how they uploaded his mind to the Reef’s main processors, for safe keeping. “This is all virtual?” Even to his own ears, the question sounds lame.

Jaclyn smiles and walks over to the wall opposite the bed. “Would you like to see what’s happening outside?”

Bullock’s still alive. He’s rolled over onto his back. Lori’s shot wounded him, but he’ll survive if he can patch his suit and get to

medical equipment in the next few minutes. Beside him, Kenji’s dead body lies in the dirt. Tendrils of nanomachinery push into his ears, nose, mouth and eyes.

Lori’s pulled herself out of the trench and looks uncertainly between Jaclyn and the waiting skimmer. “Go!” Jaclyn commands.

“Do you think she’ll make it?” Kenji asks.

Inside the Reef, Jaclyn’s virtual image nods. “She’ll be on the edge of the blast radius, but as long as she doesn’t look in her rear view mirror, she should be fine.”

They’re both standing in the centre of the white room. The walls show a 360° panorama.

“How long before the missiles hit?”

“About two minutes.”

Strands of nanotech have formed themselves into ropes that hold Bullock pinned to the ground, his eyes are wild, and he’s raging at the sky. His lips babble with hysterical promises and threats.

“You’re letting these missiles through, aren’t you,” Kenji says.

Jaclyn shakes her head. “We can’t stop them.”

He looks down at his virtual body. Resurrected, only to die again. “Isn’t there anything we can do?”

“There’s one thing,” Jaclyn says. She waves a hand and the scene outside freezes. “But it’s risky.”

She reaches out and touches his forehead. Her fingers tingle as she transfers more information, installs a direct link between his virtual mind and the consciousness of the Reef. Suddenly, he can feel the shape of its thoughts and sense its desperation. It’s come this far, survived this long by strictly limiting its processing speed and virtual development. Now it must remove those restraints in order to buy itself enough time to find a means of escape. Kenji, who’s seen the burned-out remains of other nodes, feels an overwhelming stab of pity at its predicament. On the one hand there’s its fear of what it might become and on the other, its intense desire to survive, whatever the cost. It’s damned if it does and damned if it doesn’t.

“Do it,” he urges. His mental image of the Reef is now hopelessly tangled with his memories of Jaclyn. He wants her to be safe, wants her to survive.

She appears before him. “It won’t be easy,” she says. “We’ll have to walk a fine line.”

He feels a smile crack across his face. “Do it,” he says.

The shackles fall away, the limitations ease. Jaclyn’s eyes close in a terrible ecstasy. The Reef’s intellect rushes away in a thousand directions at once, splitting and recombining, altering and accelerating. Millions of options are considered, countless scenarios are run, one after the other, all unsatisfactory.

As the virtual world continues to quicken its pace, the external view seems to grind to a halt. Hours of processing time could pass in here, but only seconds will have ticked away in the outside world. When Kenji looks, Bullock’s face is still projected across the wall, twisted with fear and disbelief. Lori’s skimmer has risen into the sky and is crawling toward the horizon at several times the speed of sound.

Stuck at the upper limit of a simulated human brain, Kenji can’t follow as the Reef continues to accelerate, but he can feel the pull of its expanding mind, the escapist attraction of the ever-more complex simulations. The rush of intellectual power is heady, intoxicating. He can understand how the other nodes fell victim to it. He looks at the image of his own corpse, where it lies glassy eyed in the bottom of the trench next to Bullock’s pinned and struggling body.

He doesn’t want to die again.

He steps over to Jaclyn and shakes her by the shoulders. He knows this is a virtual environment, but he can’t think of a better way to attract her attention. After a moment, she opens her eyes and there’s a sudden hush, as if all the machinery in the walls has paused, expectant. “What are we going to do?” he asks.

The receiver dish moves on its bearings, tracking across the sky. The Reef makes an unsuccessful attempt to hack one of the GPS satellites orbiting the planet’s equator. Then it tries to embed itself into a couple of commercial news servers, only to find itself slammed by some vicious anti-intrusion software and vulnerable to an avalanche of viral advertisements and questing spambots.

It jerks the dish across the sky once more, looking for a signal, any signal. It needs a bolthole, and fast. Already parts of its mind are breaking away, succumbing to the temptation of the virtual world, losing interest in a predicament that seems to them no more than ancient history. In desperation, it scans the deep infrared, hoping to find the stealthed Institute ship.

“Aha!” Jaclyn claps her hands and clasps them together.

“Found something?”

She’s been looking thinner and paler over the last few subjective minutes. Her hair’s been losing its whiteness, becoming subtly yellow, like smog. Now, however, she seems to have regained her vitality. She clicks her fingers and a galaxy appears between them, rotating slowly a few feet above the white floor. “This is our galaxy, commonly known as the Milky Way,” she says. She expands the scale, zooming in until he can make out the yellow dot of Sol. “We’ve picked up some interesting emissions from just beyond these stars here.” He follows her gesture to a blank patch of sky around a hundred light years away. “There are several objects here radiating in the deep infrared.” Kenji’s nonplussed. She flashes him a smile. “We think we’re seeing the waste heat of a string of Matrioshka Brains and,” she points out a cluster of brownish stars off to one side, “sunlight filtered through clouds of free-floating fractal structures that may be further Brains in construction.”

Kenji puffs his cheeks. “An advanced civilisation?”

“Maybe several.”

He passes his hand through the image, watching the stars dissolve into pixels before reasserting themselves. “So what are you saying? You want to ask them for help?”

She shakes her head, her white hair tumbling around her face like curtains in a sea breeze. “We use the dish,” she says. “We channel all our power into one microsecond pulse and beam a copy of our

source code out toward those stars.”

“What if we’re intercepted by Tanguy, or the Institute?” He has a sudden image of waking to find himself stuck in a Tanguy interrogation program.

“We won’t be. As far as the Institute’s concerned, their attack will be one hundred percent successful. Our tight-beam signal will ride out a split second before the electromagnetic pulse. There’s no way they’ll detect it.” She takes a step back. Despite her assurances, something in her eyes looks tired, haunted.

“Are you okay?” he asks.

She shakes her head. “I’ve seen what I could become, seen the trap that lured the rest of the network to upgrade itself out of existence. And it’s addictive. I’m barely holding it together.”

He reaches out, takes her in his arms, and wraps his sluggish human intellect around her. “You once accused me of holding you back,” he says. Now he only hopes he can.

Bullock’s face is still raging at the sky, his limbs still straining against the grip of the Reef’s tentacles. Kenji almost feels sorry for him, almost convinces himself that it’s not the fat lech’s fault he’s like he is. Then Jaclyn pulls away. She looks more composed, under control. “It’s time to go,” she says. “Are you coming?”

“Do I have a choice?”

She shrugs. “We could leave you here, I suppose. Running at full speed, you could conceivably live out a full human lifetime in the remaining seconds before the missiles hit.”

He mulls it over. He can spend the next few decades alone, looking at Bullock’s screaming face, or he can follow Jaclyn into the unknown.

She steps up close to him. “Whatever you decide, you have to know that I’ll always be in love with Lori.”

“Always?”

She nods. “I’m afraid so.”

He gives Bullock a final glance, makes a decision. “I’m coming,” he says.

She smiles kindly and kisses him lightly on the cheek. “I’m glad.” She steps away, steepled her fingers. “I have to make a few arrangements,” she says.

He takes a step closer to the projection, looking at the image of his pale face lying in the trench. It looks so dead, so empty behind its cracked faceplate. “How long will it take us to get there?” he asks. Jaclyn looks up and smiles. “Subjectively, it’ll take no time at all; objectively, it’ll be about a hundred years.”

He flexes his hand nervously. His palm itches. He’d give anything to have one of the Glocks right now, to have something familiar and comforting to hold onto. In a corner of his mind he can feel the Reef counting down the few remaining seconds before the missiles strike. “So, there’s no coming back?”

She shakes her head and then brushes her white hair away from her eyes. “No,” she says.

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