

Biosphere (v1.1)

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The autopilot brought the lander in fast, braking hard over the tiny clearing in the forest and setting down before the fusion flame could set the trees on fire. That didn't seem like a big danger -- it was raining like a waterfall out there -- but Darran figured the first person to visit a planet that might be inhabited should be careful not to cause any more damage than necessary.

The computer said, "Contact," and a moment later the automatic levelers adjusted the floor angle. Darran shut off the drive and spoke into his pressure suit mike.

"I'm down. View out the port is very bright and green. The glass is too ripply with rain water to see much detail, but tell Boglietti his planet's chartreuse."

Richard Boglietti had discovered the planet while the Pioneer was still half a light-year out from Altair, but he wasn't the explorer type. He was an astronomer; the overall system held more interest for him than did the planet itself. The starship's two other crewmembers were excited enough, but they were both in the infirmary with a virus they'd gotten from one of the passengers coming out of hibernation, and none of the sleepers would be ready for duty for over a week. It fell to Darran, who had been born twenty-two years ago en route from the Sirius colony and had never before set foot on anything not manmade, to speak the first words from the surface. And to find out why there were no cities or obvious signs of habitation despite a constant low-level microwave hum that came from practically everywhere.

He tried not think too much about the responsibility he'd been given. It would probably come to nothing anyway. Nobody had answered their radio signals; the microwaves probably came from a natural source.

He closed his suit visor. "I'm buttoning up to go out -- "

"Warning," said the computer. "External cooling air pumps one and two have failed."

Darran looked to the control panel for confirmation, saw two red lights blinking there. Then another one. He looked at the label just as the computer spoke again. "Main engine fuel line failure."

Was he under attack? But the external sensors registered no motion outside. Besides, the air pumps and fuel line were inside the hull; they would be impossible to hit without taking half a dozen other subsystems with them. It had to be a spontaneous failure, even though the lander had worked fine all the way down through the thick atmosphere.

But that was just the beginning. A wave of warning lights swept across the board, starting in the drive section and working steadily across the attitude control jets and external sensors, then blinking on in the environmental section and power supply. The computer's alarm voice couldn't keep up with it.

"Computer, shut up," Darran told it. "I've got a cascade failure of some sort," he said for the benefit of the people in orbit. He was proud of how calm he sounded. It had to be an instrumentation problem; that many separate systems couldn't fail at once.

Then he felt a thump from beneath the deck and heard the screech of metal giving way under too much stress, and he decided maybe they could.

The computer broke silence to say, "Situation critical. Eject now," but he was already shouting, "Eject, eject!" If the control board could be believed, the fuel tank had just ruptured.

He felt a hard jolt, and the instruments went dead. Either the tank had blown and he would be dead in a millisecond or two himself, or ...

Heavy acceleration shoved him back in his seat. Motion outside the viewport drew his

attention from the dark controls. He was flying horizontally across the forest, maybe a hundred feet above the treetops. Fast. The computer had fired the eject rocket, then immediately turned it sideways to give him the best chance of escaping the explosion.

A ragged, cylindrical chunk of tree shot past, and a second later the control cabin shook as the blast caught up with him. He saw sky, then trees, then sky again, and he felt his harness straps reel him in tight to the seat.

He hit the forest backwards. It felt like the first tree snapped off, and the second one flexed, bouncing him back the way he'd come. The viewport offered little clue: he saw branches slap the glass -- a particularly big one put a starfish crack in it -- and then he felt a hard jolt forward and everything went dark. The control cabin had plowed face-first into the ground.

"I'm alive," he said, amazed. He didn't even hurt anywhere. His heart was pounding like crazy, but he had survived without a scratch.

Nobody responded.

"Hello up there," he said again. "Darran to Pioneer. Come in, Pioneer."

The external antenna had no doubt been scraped away in the crash, and his suit radio apparently wasn't strong enough to punch through the hull and a hundred miles of soggy air on its own. He would have to go outside and try it.

"Computer?" he said.

Silence.

"Oh, great." He peered closely at the control panel, looking for the reset button. A few warning lights still burned there, but they didn't provide enough illumination to see by. The emergency cabin lights didn't respond to his command either, so he flipped on his suit's headlamp. Its beam looked eerily blue after all that green a moment ago.

There was the reset button, up in the corner where he wouldn't hit it by accident. He pushed it, waited a second, then said "Computer."

Still nothing.

Definitely time to try calling for help from outside.

The cabin was surprisingly undamaged. Darran took a couple deep breaths and unbuckled, then climbed up on the seat so he could reach the airlock. The planet's low gravity helped some with that; he was able to pull himself up with just his arms. The inner door slid smoothly into the wall when he punched the cycle button; he hit the emergency stop when it was two-thirds of the way open so he'd have a ledge to stand on, then climbed in and took one of the laser pistols from its clip in the airlock. He didn't really think he had been attacked, but it reassured him to hold the laser anyway.

Nothing happened when he pushed the button to open the outer door. He wasn't surprised; there was a big dent where the door had met with a tree. He opened the access panel beside it, broke the security strip over the red T-handle, and yanked that sideways. The explosive bolts went off with a bang and the hatch tumbled away to land with a splat on the wet ground. Bright green light flooded the interior of the cabin again, along with a shower of rainwater.

"Hello Pioneer," he said again, standing on the partly closed inner door and sticking his head cautiously outside. If natives had attacked him, they could be out there now, waiting to finish him off. He held his pistol ready, but he knew he wouldn't have a chance against more than one or two opponents. He couldn't really believe he'd been fired on anyway, not that quickly. Anything intelligent enough to invent a weapon would be curious enough to see who he was before they shot at him, wouldn't they?

Nothing moved. He switched off his headlamp. He could hear, muffled somewhat by his pressure suit helmet, the hiss of rain beating against the skin of the lander. And against his helmet. He felt a thrill run up his spine, a surge of excitement that had nothing to do with the crash. He was down on a planet, getting rained on by water that had never been through a spray nozzle.

Well, maybe some of it had. Darran inched his head upward and peered all the way around in a circle. Was anyone watching him? The idea made him shiver again. He had hoped to meet aliens, but not under these circumstances. "Come in, Pioneer," he said. "Caitlin? Rich? Do you read?"

Nothing. He was beginning to realize that he could be in serious trouble here. He was used to life on the ship, where help was only a deck or two away even in the most serious of problems, but here he was hundreds of miles from home at its closest approach. They had another shuttle on board, and the big cargo lander, but if the crew thought he was dead they wouldn't send either down until they knew what had killed him. He might have to spend the night in the truncated remains of the shuttle, living in his pressure suit and hoping his air purifier didn't give out.

He looked back to where the engine had been. The control cabin ended in a smooth line even with the inside deck; everything but a set of emergency batteries and his air tank had gone with the drive section.

Rain poured in through the hatch at his feet and dripped onto the control panel. It didn't matter; there was nothing left to control, but he might be spending quite a bit of time in there waiting for rescue. He climbed out, his back itching at the thought that someone -- something -- might have him in its sights, and pushed the button that closed the inner door.

From atop the hull he looked out at the forest, the near trees towering over him, anything farther than a few dozen feet half hidden in the downpour. Even so, there was a lot of biology out there -- way more than he was used to on the ship, even in the garden. The trees rose up tall and straight, about ten or twenty feet apart and without branches for the first thirty feet or so, then they sprouted a four-foot diameter ring that would have been at home under the cap of a giant mushroom, and above that they had more conventional branches. He couldn't tell if they were needled or leafed or something else, not with the rain streaking his faceplate. The forest canopy didn't seem to slow the downpour much.

Down below the trees, bushes and flowers and vines and a thousand other plants competed for space on the ground. Everything was green, even the flowers, as if he had a green filter on his helmet; and the sky glowed bright even though the cloud deck was about forty thousand feet thick. He was glad for that much shade; he had in fact picked this landing site rather than a clear spot because of it, so he wouldn't fry in direct sunlight. Altair was nine times brighter than the Sun; even though Boglietti's Planet circled it a lot farther out than Earth circled Sol, it was still too hot and bright for human comfort out in the open.

Well, Darran was here to explore. His heart pounded and a small voice in the back of his mind cried, "Stranded, stranded!" but if he couldn't contact the ship he'd better have a look around to see what he could do to help himself. He walked along the curved hull until it became too steep to stand on, then turned and began to climb carefully to the ground. It would be easy enough to climb back up; gravity was only about two-thirds that on the ship, and most of the handgrips and tiedowns had survived the trip through the trees.

Or so he thought. The second one he put his weight on gave way under his boot, and he tumbled to the ground. Fortunately he landed on his butt, but the suit didn't like it even so. The alarm voice said, "Suit integrity breached. Overpressurizing to avoid atmospheric intrusion."

"Cancel that," he said. His ears popped, then popped again. The crew had already determined by spectroscopic analysis from orbit that the air was breathable; there was no sense pouring all his oxygen through a suit leak just to delay the inevitable. He reached up to his helmet and lifted the faceplate, tensing at the idea of taking his first breath of an alien atmosphere.

The faceplate came off in his hands.

He stood there, smelling the rich, fragrant air and listening to the suddenly louder hiss of rain while he stared blankly at the shallow bowl of clear plastic which had, only half an hour ago in orbit, kept him protected from vacuum when he transferred over from the Pioneer to the lander. And which had done the same during countless other EVAs throughout his life on board the starship.

He looked at it more closely. Nothing wrong with it that he could see. He tilted his head back as far as he could inside his helmet and looked at the channel the faceplate was supposed to slide in. There was the trouble. The metal track that held the silicon rubber seal had bent outward, as if under incredible pressure.

Which was ridiculous, of course. That kind of pressure would have crushed his head first. He reached up and tugged on the frame, and the problem immediately became obvious. The metal track stretched and came away in his hands like warm modeling plastic.

He tugged at the headlamp and it did the same. Its batteries flashed in a loud spark as they shorted out.

Something was eating his pressure suit.

His laser pistol sizzled. He instinctively flung it away, as if it had transformed into a huge bug. It hit the ground and flashed brilliant blue when its power pack discharged.

In blind panic he scrambled back up the side of the lander, but the handholds pulled loose and he wound up on his back again. He tried kicking holes directly in the softened hull for his feet and punching handholds to grab, but he made it no farther than before. The whole skin of the lander was sloughing away. As were the boots and gloves of his pressure suit.

This was what had happened to the air pumps. They had been sucking in cooling air all the way down from orbit. Darran was lucky he'd had time to land before they dissolved.

"Help!" he shouted, hoping his suit radio might somehow reach the ship. "I'm falling apart down here! It's like acid, or -- hell, I don't know what it is, but it's eating everything!"

No response from the ship, but he heard a groan from the shuttle and looked up at the curved wall, then took a few nervous steps backward. It was hard to walk on the springy, uneven ground. Water and little plants squished between his toes, and harder plants poked at the soles of his feet through the deteriorating boots. The soft stuff felt disgusting, and the sharp stuff scared him silly. He expected his skin to go the same way as his pressure suit any moment now, starting with whatever spot got the first scratch.

The lander slumped like a melting sugar cube. The rounded wall buckled, and with a wet slurp like the sound of a ripe melon being ripped apart the walls fell away, exposing the control panel and pilot's chair. Darran watched as they dissolved, too, and waited with mounting terror for his body to do the same.

The pressure suit shredded away like wet tissue paper, all but the faceplate, which he clutched in his hand while his clothing started to disintegrate, but his body remained unaffected. Long after the p-suit and his clothes were gone and the lander had become an unrecognizable lump of decayed metal, he stood there, alone and naked on an alien world.

The rain felt like a hot shower against his bare shoulders. On board the ship he had loved the sensation. Sometimes he would shower until his skin wrinkled like a raisin's, luxuriating in the endless supply of recycled engine cooling water. The supply here seemed equally endless, but far less comforting.

At least it was warm. He laughed when he realized that. At least it was warm. Count your blessings, his mother had always told him; well, there was one.

His laughter quickly edged over toward hysteria. He fought it down and tried to think. Everything else had dissolved, but he hadn't. Nor had his faceplate. And now that he looked closely at the molten puddle of silvery metal that had been his lander, he saw a few other pieces of plastic that had survived.

He wondered how long that would last. The metal was still seething with activity. Not quite boiling, but there was plenty of reaction going on there. What sort of reaction? That was the question.

Acids ate metals, didn't they? Could there be some kind of acid in the rain?

He had a hard time believing it. Sure acids ate metals, but the hull was mostly titanium and it had disappeared like that. Any kind of acid that corrosive would have eaten him as well, wouldn't it?

He shuddered again. Don't think about that, he told himself. Don't even begin to think about that. You're not dissolving.

Maybe there could be some kind of acid that ate metal but not flesh. This was an alien world, after all. It could have come up with organic compounds unheard of anywhere else, including acids. Or microbes, for that matter. Maybe it was something alive that liked metal but not people. Or any organic molecule of sufficient complexity. That would explain why some of the plastic parts hadn't dissolved.

He bent down and ripped up a handful of green moss from between his feet. At least it looked like moss. Dark green. It felt squishy and a little bit coarse, as if its individual cells were larger and stiffer but joined more loosely to one another than Terran cells. It smelled musty, alive. Maybe a little like the chlorella algae in the air tanks. If he'd been on board the Pioneer he could have analyzed its chemical makeup in a few minutes, even mapped its DNA if that's what it used for genetic coding, but here he had no tools at all. It looked like a grainy plant; that was all he could say about it.

He looked up again. Still no sign of anyone out there. He almost wished there would be, but it didn't seem as likely now.

He wondered if anyone was warming up the other lander yet. Despite his fervent wish for rescue, he hoped they wouldn't. Whatever got him would almost undoubtedly get them, too. Even if they were able to land and take off again without dissolving, they'd never make it all the way back into orbit before the acid -- or whatever it was -- ate into something critical and the drive blew them all over the sky.

He had to warn them. But how? He had no radio, no weapon to signal with, no way to make a fire -- nothing except the curved plastic faceplate from his spacesuit. He couldn't even lay out a message for them to read through the clouds with hi-definition radar, because there was nothing to lay it out with and no clearing to lay it out in.

Or was there? The one speck of non-green color in the entire forest, besides the pool of metal slowly draining into the mud at his feet, was the bluish-white trunk of the treetop the control section of the lander had broken on its way down. It lay on the ground almost at the edge of vision between a couple of still-standing trunks. Without its branches it would make a pretty good log. A mile or so back through the trees there was undoubtedly a big supply of similar logs, probably already broken into convenient pieces, and a nice big clearing to arrange them in.

If he could ever find it in this dense forest. At that thought the little voice in the back of his mind screamed, "You're lost!" but he took a deep breath and looked up at the trees, trying to spot the still-standing half of the broken one. He had to shield his eyes from the rain so he could see, but there it was beyond the melted lander, snapped off just above its mushroom ring. From the angle between that and the piece on the ground, it looked like the original landing site had to be off to the left.

Darran looked at the silvery mudhole that had been the top half of his lander. Should he fish out any of the surviving plastic pieces? He didn't want to abandon anything he might need later, but he didn't know how he could carry more than a handful of stuff, and he couldn't bring himself to reach into the quivering mass of decomposition anyway.

With one last backward glance to fix the location in his mind in case he needed to return, Darran set off through the trees. He stepped gingerly at first, feeling awkward and more vulnerable than he'd ever felt in his life. He was squeamishly aware of every plant he crushed and of the muck that oozed around his feet, but he soon realized he couldn't watch his footing and keep his bearings at the same time. He resolutely kept his gaze straight ahead, picking a shadowy trunk in the rain and walking toward it, then picking another one in the same direction and walking to that, only looking down when he felt something particularly disgusting underfoot.

He felt like throwing up. He wondered if that was from fear or revulsion. Or whatever had happened to the lander might finally be happening to him, but he forced that thought away again. If that was the case he couldn't do anything about it.

Nor, he realized, could he do much about fear or revulsion. Even now, fifteen minutes or so

after the crash, his heart still pounded loud enough to hear over the rain. And all the living ... stuff everywhere spooked him just as badly as being stranded. Twenty-two years on board a starship, with its metal corridors and potted plants, hadn't prepared him for the squishiness of life on a planet.

And if he never took another shower again in his life, it would be too soon.

A piercing screech from off in the forest made him forget about the rain. That had been an animal. A big one, by the sound of it. He leaped instinctively for the closest tree and scraped his hands and knees as he tried to scramble up it, but he paused about six feet off the ground. Hiding in a tree wouldn't warn the ship. He had to get to the clearing. He dropped back to the springy moss and forced himself to keep walking, trying to look everywhere at once and wondering what he would do if he saw whatever had made the noise.

One worry proved unfounded, at least: there was no way he could miss the site of the explosion. Every hundred yards or so he came across debris from it, and a little examination of the skid marks in the ground invariably showed him the direction it had come from. He paused long enough at the first log to wrench free a branch, twisting it around and around until the tough fibers joining it to the trunk suddenly softened and broke free; then he busted off the other end the same way and pulled off the twigs. They ended in two-foot-long triangular leaves, which fluttered loosely on flimsy stems attached to the narrowest point.

When he was done he had a six-foot club. It lent him a degree of confidence that was probably unwarranted, since he'd never even swung a club before, but it felt good to know that he was -- in theory at least -- armed.

The club could even double as a rough spear if he could just figure out how to sharpen it. A rock would do, but there were none to be seen. Everything was covered with a thick mat of moss or bushes. There weren't even any rocks among the ejecta from the explosion. That seemed a bit strange. Surely a fuel tank explosion would have dug down to bedrock. Positron plasma was as powerful as fuel got; even though there wasn't that much of it in the lander's tank there was enough to scoop out a good-sized crater.

When he arrived at the site he saw that he was at least partly right. The explosion had flattened trees for a quarter mile around, and in the middle of them all, the center of the bull's-eye, was a deep lake. But no rock. The sides of the crater were a black, viscous goo. He bent down for a close look and saw that it was flowing like thick grease, slowly filling in the depression. It looked alive, buzzing with activity just like the remains of the control cabin. Not only that, but this was purposeful activity, as if it knew the ground had been damaged and was moving in to repair the wound.

Darran backed away from the crater. If his hair hadn't been so soggy it would have been standing on end. The ground was alive? There was definitely too much biology here. He wanted back on board the Pioneer, back to clean, carpeted decks and flat metal walls.

There was no sign of the lander, probably wouldn't have been even without whatever it was that ate non-living things. Not after that explosion. Darran looked around for any creatures capable of making the noise he'd heard earlier, but he saw nothing larger than an insect, and precious few of those. Once he confirmed that he was alone he set his club and the faceplate down and walked over to a piece of tree about the diameter of his leg and maybe twenty feet long, grabbed it by a stub of a branch, and dragged it close to the crater. The light gravity made it just possible if he leaned into it. Then he went back for another and set it at an angle next to the first one. And so on for an hour or longer, pausing to rest only after he'd spelled out "DON'T LAND" in block letters. He was especially proud of the apostrophe, even though that was the easiest part.

The work made him thirsty, so he stopped long enough to drink the water that had accumulated in his p-suit faceplate. He wondered what sort of alien microbes were in it, but he'd already breathed enough to kill him if they were going to. It tasted just like ship's water, even down to the slightly metallic flavor that he had always assumed was from the recycler. Maybe that was just the way water tasted, because there certainly couldn't be any metal here.

He was growing hungry, too, but he would have to get a lot hungrier before he tried eating any of the native plant life.

He went back to work with more logs, spelling out "METAL MELTS." He used smaller pieces for that, figuring the people on the Pioneer could use higher-resolution radar once they saw that he was trying to spell something. Once he knew for sure he had their attention he could probably just use hand signals.

Or maybe not. Radar would pass right through him. He spent a bad moment wondering if it would pick up a tree, but then he remembered they had used it to find the clearing he'd originally landed in. That and infrared.

So he could assume they had seen his message. That meant the other lander was safe, but he was still no closer to rescue. Until they found out what was responsible for this mess in the first place, they couldn't send anyone to get him.

He sat down on the "D" in "DON'T LAND," its crinkly surface pressing into his bare skin. It felt odd; slippery. He pushed into it with a finger and penetrated up to the second knuckle before he hit hard wood. It had been solid when he laid it down. The disintegration process was already at work on it, then. Now that the tree was dead, it was fair game. But it apparently took longer for individual cells to die, so the log had lasted most of the day.

With that thought, Darran realized that the sky was growing darker. Boglietti's world, like everything in the Altair system, had a lot of angular momentum, which meant a short day.

He'd done all he could anyway. It was time to find shelter for the night. Anything that would get him out of this damnable rain, and protect him from predators.

He retrieved his club and the faceplate from where he'd laid them down, but the club snapped in two under its own weight. Useless now. He was back to being naked and defenseless again, unless he could somehow use the faceplate as a weapon. Or he supposed he could rip off another branch every half hour or so, but that would mean climbing a tree, now that all the downed timber was decomposing.

It was getting dark fast. The foliage went from electric green to just plain green, then edged toward black. Darran made a quick foray into the woods and found it even darker in there. He would never find shelter in the few minutes of light left. He had only one real option, the same one his evolutionary forebears had used. He jumped up and wrapped his arms around the trunk of a tree at the edge of the blast zone. He grappled with the rough bark for a second, found a knob he could hold onto, and pulled his legs up until his toes found purchase as well. He looked overhead for another handhold, saw nothing at first, but when he squinted against the rain he saw a zigzag ladder of them leading upward. Thanking providence for small favors, he inched his way up until his head pressed against the ring just below the foliage. He paused under the overhang, savoring the respite from the endless rain, but he knew he would fall the moment he relaxed so he reached up with one hand until he got a firm hold on the lip of the ring, then swung himself out and scrambled over the edge.

The top surface was hard and flat, and maybe four feet in diameter. The canopy of leaves diverted some of the rain, at least, and the shelf would be big enough to lie down on if he curled around the tree trunk. If he wrapped his arms around his knees he might not even fall off in his sleep, assuming he got any.

The sky grew darker until the forest became indistinct, then at some point Darran realized he couldn't see his hands in front of his face anymore. He snuggled up against the tree on his left side and rested his head on his arm, covering his right ear with the faceplate to keep the water off. Through the hiss of rain he heard animals calling to one another out in the forest, and occasionally closer by. Something creaked and groaned out in the clearing, but it was impossible to say what it was. Each new noise sent his pulse skyrocketing until he could breathe deeply and force himself to calm down. It was nothing like this on a starship. There he knew what every sound was; here everything was a surprise. He waited for the shriek of something getting caught and messily devoured, but it never came.

The rain grew colder as the night wore on. After an hour or so of shivering, Darran stood up, bracing himself against the tree trunk, and reached overhead until he felt leaves, then pulled off as many as he could. He piled them in a nest on his platform and snuggled back down into them, pulling them over his bare skin and tucking them around his arms and legs as best he could. He set the faceplate over his eyes this time and settled back down.

It felt a little better. The rain didn't hit as hard, and it wasn't as cold. Darran could feel motion all along his body -- rain trickling through the leaves, maybe even bugs crawling across his skin. He felt what was probably the leaves themselves decomposing and sloughing away, and revulsion nearly made him fling everything off, but the warmth and relative shelter was just barely worth it.

He woke to bright, chartreuse light again. The sky was as cloudy as ever, and the rain still fell like a shower on full blast. It didn't cheer him at all to know that other parts of the planet were warm and dry.

Then it registered: so was he. He sat bolt upright, and nearly pitched off his narrow platform. He would have if it hadn't sprouted a railing sometime in the night. But that only drew his attention for a second, because he was wearing an even bigger mystery: his spacesuit had come back.

Darran unsealed the faceplate and slid it upward, smelled the planet's thick aroma, then closed it again and breathed until the suit's recycler removed the odors.

It actually worked. Darran had no idea where the suit had come from. He had seen it disintegrate right off his body. He looked over the edge of his platform to see if there might be someone from the Pioneer -- or maybe a crowd of aliens -- below, and nearly fell off again when he looked out into the clearing.

It wasn't there anymore. All the trees had grown back in the night, or other trees had moved in. Or maybe his own tree had uprooted itself and walked away, carrying him with it. Whatever, from his perch about thirty feet up he could see nothing but more treetops in every direction.

He had to sit down. This was all too much. His vision grew swirly until he tucked his head between his knees and breathed deeply for a few seconds. He concentrated on the rubbery surface of the platform on which he sat. Just one tiny piece of this immense planet; that was all he could cope with at the moment.

It looked slightly grainy, as if it were covered with sand. The moss he'd examined yesterday had looked like that, too. And so did his new pressure suit. He reached out with his gloved fingers and scraped at the platform. It didn't yield at first, but after a moment it did, allowing him to draw deep grooves in its surface. The material he dislodged piled up just like sand. When he nudged it, it spread out like sand, too.

Had he broken the cellular bonds? The tree couldn't stand if it was that fragile. Besides, it had been tough as nails for a second before it gave way. And in the next few seconds the gritty material solidified again. The parallel grooves he'd drawn with his fingers froze into place, and the surface became just as hard as before.

He dug at it again, making more grooves alongside the first ones. He scraped his fingers through it once more, trying to make some kind of sense of what he was seeing. How could it do that?

Suddenly a shiver went all through the platform, and the lines he had drawn with his fingers shifted. They moved into regular rows and extended themselves into concentric arcs, rippling all the way around the tree trunk to form circles.

Darran scrambled to his feet in blind panic. His boots skidded, but the rough surface stopped them before he could lose his balance.

"Traction grating," he said. "It turned into traction grating." For that was exactly what it had become. He recognized it from countless corridors and access tunnels on the Pioneer. Not the same pattern, but definitely the same idea.

"All right, what's going on here?" he asked aloud. He didn't normally talk to himself, but he needed the human voice even if it was his own. "I got a new spacesuit, the forest came back, the platform grew a railing, and now it made traction grating. This can't be a natural process, no matter how alien this place is."

Which meant it was somehow artificial. He reached out to the tree and pinched the bark in

his gloved hand; after a second of resistance it softened and he tore a fist-sized chunk of it loose. He looked closely at it: green, grainy, and malleable, like everything else he'd seen on the planet. He squished it in his hands, rolled it out into a long cylinder, and looped it around to make a donut. After a second it morphed into a smooth ring and solidified.

"Kid's toy? Paperweight?" he asked. He squeezed it into a half dozen other shapes, and each time he paused for more than a few seconds it became something else, all equally unrecognizable. But he was beginning to see a pattern. He molded it back into a ring, slid it over his spacesuit's left wrist, flattened it out, and sure enough, it became a wristwatch. An alien wristwatch, with a glowing readout that showed symbols vaguely resembling Chinese, and rows of buttons along the sides, but it confirmed his suspicion. In a what-the-hell mood, he pushed one of the buttons.

The platform on which he stood shuddered, then glided smoothly to the ground. When he pushed on the railing, it parted for him and he stepped out onto the springy forest floor.

"They solved the power distribution problem," he said in wonder. Humanity's attempts at creating universal nanomachines had run repeatedly into the same barrier: it was impossible to give such tiny machines enough energy to disassemble and reassemble things much faster than a living cell could.

The aliens who lived here had evidently figured out how to do it, and they'd come up with an integrated control system as well. Apparently if you shaped the nanomachines into a rough approximation of what you wanted, they would search for a match within their database of known objects.

And when faced with an object they had never seen before, they would disassemble it to make their own template for next time. Either that or they just ate any raw materials they encountered. Leaving biological objects, and anything that looked sufficiently biological, like the plastic faceplate, alone. Wouldn't do to eat the people they were supposed to serve, after all.

Darran wondered what had finally killed off their masters. Or if maybe they were still around, living quiet lives in the woods and showing no signs of civilization from orbit. Maybe they were watching him after all, wondering whether he was intelligent enough to figure out how to solve his problem.

That was the question, wasn't it? Well, for the first time since he'd landed on this living nightmare of a planet, Darran thought he had the answer. If he was right, he could get offworld again. He would have to spend time quarantined in a free-floating pressure bubble until they could make sure no nanomachines accompanied him into the Pioneer, but he wouldn't mind. As long as it didn't rain in the bubble, he could stay there forever if need be.

But first he had to find the spot where the control cabin had been absorbed ...

It took a few hours, since he had no downed trees to lead him back, but he eventually came to a depression in the ground with a few plastic fittings scattered within it. Hose couplings, push buttons, all useless now except for one thing.

He bent down and began scooping moss and ferns into a pile at his feet. He took his time, heaping up a mound as big as he could manage. It morphed into a dome at one point, complete with a padded bench and a table inside, and Darran nearly quit his work to go sit down out of the rain, but he knew he was close now so he kept digging and piling.

After a few more pounds of mass he got something that looked a little like a teepee. Apparently a man piling up things in the rain looked like he needed shelter more than anything else. He kept scooping debris up against it, and eventually it became a simple heap of working mass again.

At last when he felt he had approximated the shape of the lander, he reached in through the yielding surface and placed the plastic parts inside, as close as he could guess to where they belonged.

Then he stood back and watched as the surface writhed, expanded, and solidified into a sleek, narrow-bodied, stubby-winged spaceplane that looked like it was doing about ten

percent of lightspeed just standing there.

"No, dammit, I want the lander," he said aloud. He was about to start pushing and prodding again when he realized the flaw in his plan. The nanocreatures didn't know what the whole thing looked like. The engine section had blown up before they could make a template of it.

But they had done the best they could to provide him with what he asked for. He took a closer look at the spaceplane, and smiled for the first time since he'd arrived. It did look like it would fly, if he could just figure out the controls.

Fortunately it was already pointed upward. He searched for a hatch, found it between the wings, and popped it open with the recessed handle. The inside of the cockpit was long and narrow with a single wrap-around window overhead; after a moment he realized he was supposed to stand up in it. When he did, and closed the hatch behind him, he discovered that his arms would fit into sleeves that extended into the wings. They weren't designed for humans -- the arm holes were about ribcage high -- but when he slowly stood up and exerted pressure on the sleeves, the holes moved upward to accommodate him.

There weren't any control buttons. Just pedals under his feet and toggles at the ends of his fingers. It wouldn't take much experimentation to figure out what they did.

Head first into the unknown. He grinned outright at the thought. This didn't scare him nearly as much as all the living stuff just outside. He was used to spaceships.

"Let's do it," he said. He flexed his toes and wiggled his fingers, and with a roar of power loud enough to drown out a whole planetful of rain, the spaceplane leaped into the sky.

He leaned left, flexed an arm, arched his back. The ship mimicked his movements in all three dimensions. He felt like a superhero, like a god, and at that moment he understood where the aliens had all gone. With this kind of freedom, they had gone everywhere.