

Cactus Tree

I crawled out of the bed and moved to the porch. I didn't want to be awake today. Jans was already up, with a cup of something caffeinated in his hand, no less. He looked over to me and grunted. I wondered if he had slept. This would be a big day for him. His girlfriend was coming in.

In front of us stretched the desert, a view not unlike Arizona. There might have been a little more purple in the sand and in the sunrise, but the effect was probably the same. I wouldn't know, as I've never been to Arizona. We were on a colony planet near the edge of human settlement. The third wave was coming in today, and in that group was Jans's girlfriend. I had only seen pictures.

I squinted into the sudden rush of light. We were two miles from the ansible farm. When I was in an especially bad mood, I would joke that the farm was where they grew the humans. Even in those moods, I didn't think it was risqué or funny. In reality the humans were communicated from a base station, but I wasn't a big believer in the technology.

Three years ago I, and around a hundred other first wave settlers, came to this planet to settle it. This more or less meant building the ansible farm. The base station had tossed it into low planetary orbit ages ago. The idea was to ship the stuff slowly enough that time passed at roughly the same rate for the objects in transit and the objects that stayed behind. Ansbles work on a principal of linked quantum spin. Two particles with opposite spin are isolated. When you change the spin on one, the other compensates, even over a distance. Changing spin on either end is a way of sending information. Change the spin fast and often, and you get to send a lot of information, nearly instantly, over long distances. The only downside is that you have to ship them slowly to keep the link intact. Funny thing, quantum mechanics, I don't pretend to know much about it.

Anyhow, these ansibles are small, and one of them can only change rotation at a finite rate, even when you have the technology pretty well locked down. So you send a lot of them. Sensors on the ship make sure that your target planet is habitable. Then the first wave follows up at near light speed and brings the ansibles down to the planet.

I've made a career of doing this. We setup a small settlement with the supplies we had. Some of gear can be used to assemble objects from local atoms. We "shipped" everything new in by copying it from schematics that the ansibles transmitted.

It's a pretty good way of staying connected. After the initial shipping time (measured in thousands of years) things can move from point A to point B pretty quickly. The great interstellar patience game seems impossible at first, but when you realize that we're slinging ansible farms at just about everything that looks remotely habitable, you start to see how there could be a lot of work for first generation settlers like me.

We can, of course, use the ansibles to transport people. That's where the second wave of settlement came from. We still haven't found a way to cheat the universe and move faster than light in spaceships, and most people don't want to travel at near-light speed. After four or five trips, everyone you ever knew would be dead. Ansbles are

the answer. You cease to be in one place, and a moment later you are reassembled in another, no time passes as you perceive it. It's like teleportation in the old shows.

There are a smattering of theists and fools who don't believe in the technology. I count myself among them, godless heathen though I am. There is something discomfoting about being taken apart and reassembled in a new place, where none of the atoms from my original body can be used. I can't get my head around it. I don't feel like there would be any continuity of consciousness. I'd cease to be and a perfect copy of me would take my place, but my thoughts would have ended back on the first planet. They tell me it's like going to sleep and waking up. People who take my view on the matter are mockingly called 'originals' because we think the people around us are not the real thing. Jans is not an 'original.'

He came with the second wave. One day I woke up, and he was standing outside of the house I had built. It's a rickety thing. I designed it to look like a frontier house from the late 1800s First Earth Era. It creaks in the dusty wind, and it's taken on a bit of the purple tinge that seems to coat everything on the planet. Jans has been sleeping in what passes for my living room for almost a year now. Colony etiquette says he should have built his own structure by now. In the opening days of a planetary settlement everyone gets a lot of space. They codified this after the first few colonizations. There's something about the isolation from the rest of the human race, and a small group of people working together. Or maybe it's the fact that suddenly there's just so much land around to call your own. People in that kind of environment simply need more space. There were a lot of murders in the first colonies.

I let Jans stay here anyway. No one really cares as long as I don't force the issue, and when his girlfriend shows up I figure he'll be out of my hair. He's good to have around, as he keeps me active.

My job in the colony has two parts, mapping the terrain and city planning. Honestly, keeping busy hasn't been a problem so far. I don't remember what Jans' job was supposed to be. I have him handle the odd task for me and take topo for areas that I need mapped, when I'm busy. As far as I can tell, Jans is a little off in the head, so maybe it's good that I keep him active.

After staring at the horizon for a while, he turns and looks at me.

"She doesn't get in for hours," he says. "Go for a climb?"

"Sure."

I don't know why I ever say yes to climbing with Jans. It's true, the rock around here is spectacular, a heavily pocketed sandstone. Ages of wind blown dust have carved spectacular desert towers. I love them, and the rough rounded feel of the rock under my hands. Climbing here is wonderful, but Jans climbs with gloves. These gloves have thousands of tiny cilia covering their surface. They allow him to cling to surfaces that are otherwise sheer, and they take all the challenge out of most climbs. If the sandstone weren't so loose as to come off on the glove once in a while, it wouldn't even be exercise for him. He'd just shoot up the pillars like a gecko.

I grab my gear and wait for him to find his suit, which he left in the bathroom after we last went climbing. I'm not about to help him find it. Then we set out to the nearest rock outcropping, which is where we always go when we don't have much time. It's about a half an hour's hike from where I built my house. There are plenty of routs on it, and I haven't come close to climbing all I can. Jans usually does a few laps

up and down, while I scramble up the first few pitches. Then he hovers above me, offering encouragement when things get hard. Mostly, I hope he'll fall off. Nothing fatal mind you. I just want him to let me climb alone.

This time I make it three quarters of the way up a new rout before he gets bored and starts to watch me. I've got my fingers in a sequence of shallow sloping pockets, where the rock starts to wear away the moment I touch it. It's still not very hard climbing though, and I find myself talking to Jans as I climb.

"Jans, I've been thinking. How do you know they won't just send you a perfect carbon copy of her over the ansible?"

"Why would they? They didn't do that with me. I'm here and she's there, soon we'll both be here."

"Speaking of which, how do you know they disassembled your body over there? There might be two of you, one there and one here. Each of you go about, doing your own thing, and you, here, are never the wiser for it. You might have an interplanetary twin."

"Nah, I would have sent myself a message or something on the comm ansible by now. Besides, you know they don't do that. It's not policy, because then they'd have disappointed people, who didn't want to be originals, wandering around. They'd have set their heart on interplanetary travel, walking into the ansible read, and then walked out in the same place. That's bound to cause an incident. And have you ever met anyone that wanted to ansible to another planet, and then found they hadn't been sent?"

"No."

We climb in silence for a while. Jans watches while I struggle up some harder terrain. The little pockets in the rock get smaller, and as I climb higher, the rock gets looser. The winds at this height must be harder on the rock. My hands are sweating, and the rock is peeling off in thin layers under my skin. I should be able to do this, I think. I used to be able to do this. The planet's gravity is a little higher than Earth's. That, combined with the long period on the ship, in low gravity, has made me weak. Why is the rock coming off on my hands and not on Jans' gloves? It must be the water, millions of years of geology being undone by my sweat.

"How long did you know her before you transported over here?"

"Oh a few months, we were a pretty new thing when I left."

A year's a long time to wait. Jans doesn't even look 25. I've never asked his exact age, but if his girl was young enough, she's probably moved on by now. I wonder what I'll say to him if we go to the station and she doesn't come. If she doesn't make the transport... She might be scared to. She wouldn't be the first. At near light speed Jans would be dead if she came by ship. It would make a lot of sense to just give up before the immigration board opened the planet up to the third wave. Jans might just get a message to that effect today. "Dear Jans... Found someone else, sorry. Do try to enjoy the colony."

We get to the top and sit on the edge of the cliff. Jans takes off his gloves so he can feel the rock. He rubs it slowly, like he's tousling a child's hair. We look out at the landscape before us. Habit forces me to take note of a few features here and there, places I will have roads laid, and spots where buildings will go. To the south, almost cut from view by the cliff, you can see a cluster of buildings and the ansible stations.

There isn't much more to the colony than those right now. The first stages of settlement are always like this. It's easier to rely on the central buildings, where the ansibles are. They're made of stronger materials than almost anything local, for they were built to withstand long space journeys and entries into planetary atmosphere. Later on, the settlement will start to acquire the contours of a normal city.

That transformation begins with the third wave's arrival. Jans girlfriend is, I hear, a chemical engineer. She will likely spend her time figuring out where to get certain common elements and compounds, which we need to continue running the colony. So far we've been heavily recycling some of our scarcer resources. On a long enough time frame, we'll do that anyway, but more material for the assemblers would be nice. It would give us a little more room to breath.

I reach down and tug at some of the scrub grass. It's tough and harsh. If I'm not careful I'll cut myself on it. It's also the only plant I can lay a hand on right now. The planet hasn't got much on it, but it has an Earth similar atmosphere. Sometimes I think the planetary scouts feel we have to settle Earth similar atmospheres just because they're there. It is, in theory, easier than some of the places we settle these days, but it's depressing. Settlements on drastically non-Earth environments maintain a sense of wonder. This is just a desert colony.

The planet has some basic plant life, similar in form to earth biology, which over the years terra-formed it to the point that we can breath the atmosphere, it doesn't feel quite right, but we can handle it. That must have been the final straw. Not having to land terra-formers probably saved years and untold dollars. When a planet doesn't have a basic Earth climate it takes ages to hijack the system. Setting up the infrastructure to allow humans to live on a planet, while the atmosphere gets beaten into shape, is a huge cost. There are a few planets I've heard of that are long term projects, in the hundreds or thousands of years. We landed giant air factories on them and let them get started. Eventually those planets will probably be the best of all. When the the environment reaches a certain point the machines release Earth biota.

I snap off a piece of brush and look at it closely. It has an almost palpable alien aura. This organism evolved using completely different biological mechanisms than we did. It's means of reproduction does not involve DNA as we would know it. I haven't bothered to check the testing pamphlets, to learn if it is edible. At the moment, I have no plans that involve going far enough away from the settlement to worry about that. Still, there is a rock formation that I can see from this cliff. It looks tempting, surrounded as it is by the flat sand of the basin in which the colony resides.

Looking closely at the twig, I feel that by squinting I might see the difference in its biology. If I lean my head in, the alien mechanisms by which it reproduces will be revealed to me. This feeling never gets old. I honestly expected to miss Earth more than I do. I left it at the age of 24, having completed my training for deep space voyages and said my goodbyes to everyone I knew, most of whom were dead by the first time I made planet-fall. By now the rest of them are dead. I've been to two planets since then.

The first of those was named C824. Planets don't get real names until a certain number of people live on them, which virtually guarantees that I live on numbered lumps of rock. C824 would soon have a largely temperate climate, but it had a slightly lower gravity than Earth, and it was a constant struggle to avoid muscular atrophy. It

took me months to work myself into the kind of shape you need to be here. I could barely get off the couch in the beginning. One of the other first wavers had to bring me food a few times. In a few years my job here will be done and I'll want off the planet. The climbing is good, but that's about all. They'll only let me change planets without ansible one more time. I'll have to study the options carefully. Ideally, I'll find another first wave settlement. That way I'll get one last dose of the frontier feeling.

I shouldn't listen to that inner voice though. That's what landed me here, on a cliff, next to Jans. I'd been reading too many old westerns and they made this place sound romantic. When I arrived it hit me. The transition was even more jarring than the move from Earth, and I got an ansible message saying that one of my brother's children had died at the age of 74. When I make the next switch, there probably won't be anyone on Earth who'll know send me an update on the family. The distances and times get pretty absurd this far from Earth.

Jans looks at me. I've been quiet for a long time, and I'm still holding the little twig close to my face.

"Bored with making city plans huh? I'll have to watch you. You might start trying to steal a job from one of the bio crew."

"Hardly. You wanna go down from here?"

"Sure, you gonna use gloves this time? It's hard to rappel down this particular cliff."

I hadn't brought any gloves, but Jans has spares. By the time we reach the bottom of the cliff it's only four hours until his girlfriend transports in. We have a short hike ahead of us, and then we'll have to eat. Jans convinces me to use the cafeteria. I take a certain pride in cooking my own meals, but in a situation like ours, where there is no real food available anyway, it's only a moral victory.

The meal is bland, as always. In a few months, after the biologists and chemists have had their way with the place, there will be something close to what we think of as soil. We'll release some microbe cultures into it, and then in theory we'll plant crops. I look forward to that day. The growing season here will be long and the sun comes down hot. As long as we can keep the water coming, there should be plenty of food that doesn't look like purple sludge. I move a spoonful of the tapioca textured gunk around in my mouth before swallowing. It's a pity that sending food by ansible instruction isn't efficient. The matter builders, or mabbos, are too busy with other things right now anyway. By the time they aren't busy, we'll have our own agricultural system set up.

"What does she look like, your girlfriend?"

"She's about 1.7 meters tall, blond, green eyes..."

He trails off, and for a moment I think he's started day dreaming, but when I look over at him, he's clearly concentrating on something. I have long suspected that the transit from planet to planet by ansible plays havoc with people's memories. It's nothing I can prove and the science doesn't back me up. You had better believe that they spent a long time debating the safety of the technology, before they put into practice. Still, I suspect that there are some minor glitches from time to time.

"I just..." he says, "It's not coming to me right now. I used to be able to remember what her hair looked like. In my head I mean. I don't have a picture. Why would

I need a picture? I could close my eyes and it would seem that she was right there in front of me. Suddenly I can't."

I feel bad for him. I really do.

"It's probably just because she's so close to getting here," I say. "Remember when you were a kid and you had a crush on a girl. You could never remember what she looked like. You'd try for hours, but you couldn't. You just knew that she was beautiful and that you liked her."

"Yeah," he stops. "Yeah I do."

He does not sound confident.

"It's like that for everyone."

I put my hand on his shoulder and we are quiet for a moment. There is no one else in the cafeteria. We've stopped eating. Jans puts down his fork. He looks at it for a long time. Then he picks up his food and puts it in the disposal, where it will be restructured into a meal for the next person who comes in. None of it will really spoil, it's just basic proteins and other nutrients that get frozen and thawed, assembled and disassembled, as needed. The colony does its best to gather all the organic matter our bodies shed. It's part of our ethos of using minimal energy to generate organics in early stage colonies.

After lunch, we walk back to the house. I have a small office there. I like to do my work away from the other members of the community. There's an artificial wooden desk. Sitting on it is a copy of an old book, by a science fiction writer who used devices similar to the ansible. She even coined the term. You don't get to take much with you on the ship when you go. I thought the book would amuse me. It's about a bunch of anarchists on a desert planet. That seemed fitting, as this is a desert planet, and most of us here are running from something, even if it's an innocent something.

I need to get to work on some aqueducts. That means looking over the surveys for a while. There are two seasonal streams nearby, but the real key is going to be a possible up-welling of water from an underground source. Geological surveys of the area have picked two likely points. I start to outline the aqueduct on the topographical map my computer brings up. It's engaging work. Maybe not to you, but for me there is something about the flow of land that appeals as people never can. I am more at ease with maps than I am with humans. Even now, focusing on the aqueduct, the map is talking to me. It is telling me where I will place streets and houses, where the civic centers will be. I can see little men and women walking down lanes that I have yet to draw.

For the moment, however, I must focus on the task at hand. I need to go out tomorrow and make sure that the second site, the ideal location, does indeed have the water we will need. I'll have to drag Malik, one of the colony geologists, along for that. He won't want to come. Moving too far from the settlement makes him nervous, not that I can blame him. Unfortunately there is equipment I need, and that only he can use. Moisture levels, among other things, will have to be checked. I start to take some more notes, forgetting about the city I was dreaming of.

There is a soft knock at my office door. Jans is standing there. He looks a little more sedate than he did before; a lot more sedate than I think he should be. His girlfriend is transiting in. He's been talking about it for months. Now he looks almost sad to see the moment arrive. It doesn't matter though. Different people will react to these

situations in different ways. I can't tell how I would react. I don't know that I've ever been that close to someone.

"She's going to be here in a few minutes. Will you come with me?"

He sounds almost childish. I put my shoes on and stand up. The walls of the house suddenly look spartan. Jans isn't going to be in here much longer. He'll probably get to work on his own house tomorrow. I realize suddenly that I am going to miss having him in the house. There is a certain feel, like a low hum, that comes from having another human being in the house. After this it will just be white walls, grey trim, and me. We walk out together and I look back. I wonder why I made a porch for the house. No one ever comes by to sit on it and chat.

The walk to the ansible farm is hurried. Jans has cut things close and he doesn't want his girlfriend to arrive with no one there to greet her. He checks the time constantly. Every time he checks, he starts to walk a little faster. By the time we get to the station, it feels like we're in a dead sprint. Jans' face has started to loosen up and show some excitement too, though that could be from running.

Several people are milling around the building. As we jog up, I wave hello to a few of them. They look nervous. Not many people know anyone in the third wave, and in a few minutes the feeling of the colony is going to be changed irrevocably. Tomorrow I will have seventy or eighty people asking about where they can be zoned to build houses, and that won't be near half of them. Once that's taken care of, work will begin on the next nano replicator and the aqueduct. I shouldn't have come with Jans. I should have stayed behind at the house. I should be working on plans to absorb all of these people into the community. Now I'll have to pull an overnight to get ready.

The ansible farm feels cold and strangely tense. It's a fully enclosed space, and even the air has been worked over thoroughly, to ease people's entry into the new atmosphere. Goose bumps rise on my arms. The walls reveal nothing of the building's function. At the other end of a long room, with no furniture, is a row of curtained entrances. The curtains have a greenish tint, and are the only objects in the room that aren't white. If we had any real form of government in the colony, it would feel like Jans and I were going here to vote. I check the time again. In three minutes people will start walking through those curtains, having been reassembled from the information that the ansibles provide.

Jans is almost hyperventilating. His shoulders have started to rock a little and he squirms as if his back were seizing up, but he looks at me and smiles. I turn my eyes back to the curtains, squinting, looking for motion. There will be no sound. Someone will simply walk out and then others will follow.

It happens. The first one out is a woman. These situations are always difficult, as the etiquette is not well defined. This first woman sees us and nods. Then she walks right past us. It is not traditional for the welcoming party to be in the main room of the ansible farm. The next people to come out all nod or gesture to us in some small way. Then the crowd gets too thick, and we are surrounded by the new arrivals. It's an eerie feeling for me. None of them make eye contact. They feel like zombies rubbing up against me.

Jans' hand is on my arm now. He's gripping it tightly. Several hundred people have spilled from the curtains. The silent rustle is starting to break. People are beginning to speak to each other. This will be a party for everyone but me. I'll be doing the

planning. Hopefully they'll all be happy. Hopefully they're desert people. It takes a certain kind. The murmur becomes a roar of greetings and exclamations. The exit has backed up, and people are treating the cramped room as a social invitation. I catch the names of several planets, past jobs, and friends of strangers. Jans and I begin to force our way to the front.

When we get out the sun is bright. I can't see anything for a moment. By the time I adjust, the crowd has thinned out. Everyone is exploring. Jans is still standing next to me. He's looking around. From behind us I hear her.

"Jans," she yells, "Jans!"

Jan and I turn, and I see a woman walking toward us. Her arms are open in greeting. There is love in her eyes. Her brown hair catches the wind and whips out behind her.

by Ian D. Macleod