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# The Ophiuchi Hotline

*To My Mother*

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## Author's Note

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To answer your first question... it's pronounced *off-e-YOO-ki*, from Ophiuchus, the serpent-holder or doctor, a constellation that just missed fame by being a few degrees away from the zodiac.

*Daily Legal Bulletin*, published by the Intersystem Office of Criminal Control Research.  
Aquarius 14, 568 O.E.

Case of *Lilo-Alexandr-Calypso vs. The People of Luna*.

(Legal Summary—For immediate release)

The State charges that Lilo-Alexandr-Calypso, during the period of time 1/3/556 to 12/18/567, did willfully and knowingly conduct experiments upon human genetic material with the intent of artificially inducing mutations in said material. The State further alleges that defendant did produce human blastocysts and embryos reflecting potential structures atypical of the permitted spectrum of Humanity, in violation of the Unified Code of the Eight Worlds Confederation, Article Three (Crime Against Humanity) Section Seven (Genetic Crimes). The State asks the penalty of permanent death.

(Class I read-rating)

The file was started on Lilo when CCR computers noticed she had been dealing with Ophiuchi Hotline data tagged by analysis as probably related to human DNA. Crimcon agents obtained a warrant to investigate her subscription records and use-charts with StarLine, Inc., principal broker for processed Hotline data. The grand jury data bank authorized further surveillance both by computer model projection and human operatives. A warrant was granted 11/10/567 pertaining to her home, places of work, and personal property, including her body.

(Class II read-rating)

Crimcon G-cops will tell you, "Lilo was tough. Crafty. Thought we'd struck ice when we broke down the door at Biosystems Research. No joy. We were punching holos. Tapes, notes, all wiped clean when we touched them. Code crackers at CCR chewed and split: Zip. Phi. Nothing. Rerun that for her house; we were chewing vac. But she had money. Ten years back, gene patents on Banana-meat Trees. ©. Made a bundle. Checked her travel records. Access! Five trips to Janus. Hopped a 3gee tank-tripper and busted down the door, lasers ready. Nobody home, but one of her booby traps fritzed. Came home with two grams of mutated meat. Her ass was in the recycler now. X rays were pure no-go, but we opened her anyway and what do you think we found? A billion and one bits of data wrapped around her spinal cord! Eat death, gene trasher! The Hole waits!" Crimson G-cops will tell you, crime does not pay.

(Illiterate read-rating)

Photocomics and holotapes attached.

*Prisons are not what they used to be. I did a little reading on the subject when it occurred to me that my work might cause me to see the inside of one. Some of the prisons of Old Earth were pretty barbaric.*

*My cell was nothing like that. It was better than the average run of workers' warren apartments. There were three rooms, well furnished. I had a vidphone, if I didn't mind the warden listening in. I didn't use it.*

*What the cell had in common with old prisons was the most basic thing of all: The door would not open to my command. Beyond that door were dozens of others, all closed to me. There was a camera in each room that followed my movements.*

*I was in the Terminal Institute for Enemies of Humanity, three kilometers beneath Ptolemaeus, on the Nearside. I had been there just over a year. Six months of that was consumed in the gathering of evidence against me. The trial was held in a few milliseconds of computer time one morning while I was still asleep. I was told of the results—no surprises—and scheduled for execution the following morning. Then my lawyer got a six-month stay.*

*I had no illusions. The stay had been granted, most likely, because my execution was to come before the end of the semester. The Institute was running short on Enemies of Humanity, and there were theses to be completed. Twice a day one of the walls of my cell changed color and began to glow. On the other side of the wall a professor was lecturing a psych class. If I put my face up close I could see ranks of students sitting in the lecture hall. But I quickly tired of looking.*

*About once a week I was visited by teams of graduate students. They would sit on my sofa and fidget, a series of girls and boys with earnest faces, brows furrowed in concentration. They would interview me for an hour, plainly not knowing what to think of me. At first, I thought up bizarre answers to their questions, but I tired of that, too. Sometimes I just sat there for the whole hour.*

*My life crawled toward its termination.*

Lilo-Alexandr-Calypso sat in her cell and waited for morning. She still had not decided if she could bear to mount those lonely stairs. A year ago, when it hadn't been so goddamn *imminent*, it had been easy to be brave. Now she could see that her bravado had come from the deep inner conviction that no one would actually kill her. But she had had plenty of time to think.

Gas chamber, gallows. Electric chair, stake, firing squad. Hang by the neck till you're dead, dead, dead, and may God recycle your soul.

Imaginative as those devices had been, they had an extremely simple purpose. They were intended to stop a human heart from beating. Later, the criterion for determining death was brain activity.

That was no longer enough. The sad fact was that it was no longer possible to kill someone and be absolutely sure the person would not show up again. Lilo's execution in the morning was therefore largely symbolic, from the viewpoint of society.

From Lilo's viewpoint, it was much more than that. She was toying with an idea she had entertained only once before in her life: six months earlier, just before her stay of execution. She was thinking of committing suicide.

"And why not?" she asked herself, a little startled when she realized she had said it aloud.

Why not, indeed? A few years earlier she could have given a thousand reasons why not. She had been in her early fifties, still young, with her life stretching endlessly in front of her. But now she was fifty-seven, and suddenly ancient. Soon she would be dead. *Dead*. You can't get any more ancient than that.

Physically, Lilo was twenty-five. It was a popular age to be, and though Lilo did not like to ape popular trends, she had never felt good looking any older than that. Her body was largely her own, with a few surgical modifications. Her hair was light brown, her eyes were set far apart to accommodate a wide, slightly flat nose. She was tall and slim, and it suited her.

Her one vanity was her legs. She had added ten centimeters to her leg bones, making her two point two meters tall, slightly above average height. She wore fine brown hair, like chinchilla, from midway down her calves to the tops of her feet.

She got up and restlessly paced the room. What amazed her was that, once she had accepted that she was going to die, suicide began to seem like an attractive possibility. The State of Luna did not care if she killed herself; she was going to The Hole in the morning, dead or alive. No attempt had been made to clear her cell of harmful tools.

The tool she was examining now was a knife. It was a lovely thing. Stainless steel, mirror-bright—it had a symmetry of line she found appealing. Cross-hatched grooves wound around the handle, giving a sure grip on cool metal. She drew it across her throat, keeping her mind blank. Her hand shook as she brought her fingers up to her neck. No blood.

She thought about the two alternatives facing her.

Tomorrow would be an emotional moment. She was sure nothing could possibly match the anticipation of mounting the stairs over The Hole. She had a horror of breaking down completely, of having to be restrained and thrown over the brink rather than stepping off by her own volition.

On the other hand, she felt reasonably calm now. All hope was gone. Could she meet her death now, by her own hand, in private? Was it better to go that way?

It seemed to her that it was. She told herself that three times in succession and reached for the knife. She drew it over her wrist. Shuddered, and felt her heart pound. She opened her eyes and looked down and there wasn't even a red line. She was *sure* she had been bearing down. Something trickled over her cheek. Alarmed, she brushed it away.

She sat in her chair beside the small table and gritted her teeth. She leaned over the table and rested her forearm on the surface. She put the knife blade to the soft part, looked at it, looked away, dragged her eyes back and felt them drying out as she refused to blink.

There was a red trickle of blood.

"Put the knife down, Lilo."

She jumped, and dithered with the bloody knife in her hand, blushing furiously. Trying to hide in the cushions of the chair, she turned to see who had entered the room behind her.

"Is it serious?" he asked, walking toward her.

She looked at it. Just a small cut, the bleeding almost stopped already. He tossed her a cloth, which she used to dab at the blood on her hands. Taking a seat a few meters from her, he waited until she had cleaned herself.

"There's someone I'd like you to meet," he said, and gestured toward the cell door. It opened, and her blue-uniformed male guard entered, followed by a nude woman. She was tall, staggered slightly as she walked, and looked drugged. Her brown hair was plastered over her shoulders in ropes and nets; she dripped a thick, syrupy liquid from her hands and nose and chin. Her eyes met Lilo's for a moment, without comprehension, then she bumped into a chair and fell over. The guard helped her to her feet and half-carried her to the bathroom. A woman, also dressed in blue, entered the cell, and closed the door. She followed the other two. There was the sound of water running.

Lilo managed to look away. The woman's face had been terribly familiar. It was her own face.

*Gold. Everything was yellow-gold. I opened my eyes underwater and knew that I was not breathing. For some reason, it didn't bother me. I sat up and felt thick liquid roll sluggishly from my body.*

*I choked, tried to cough, and a great amount of fluid came out of my throat. For a moment I*



*couldn't cope with it. I was drowning. But someone was slapping me on the back and then I was gasping.*

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*Being born is not easy.*

Her eyes wouldn't focus. Someone was holding something out to her and all she could see was the end of an arm holding the object. It was a cup. She recoiled, but it followed her. She took it, and drank deeply.

She was sitting in a glass tank, wheat-colored liquid up to her waist. Wires trailed from her body which still twitched from time to time under the influence of the muscle-tone program, winding down now after three months of enforced exercise.

Disorientation. She couldn't string two thoughts together. The tank should have meant something to her, but it didn't.

"Come on, let's get up," someone said. It was a woman in blue, who reached over and helped the naked woman out of the tank, to stand dripping, swaying, leaning on a strong shoulder with a hand holding her firmly around the waist. She wanted to go back to sleep.

"Is she ready?"

"I think so." There was a second person, a man, also dressed in blue. "This won't take long."

She knew they were talking about her. She tried to shake the hand off, but she was too weak. It annoyed her, hearing them talk. She wanted them to stop.

"Leave me alone," she said.

"What did she say?"

They were leading her down the hall, helping her step up through the doorways, dogging them behind her. She couldn't hold her head up; it kept falling to the side. All she could see was her bare feet, her legs, and wetness dripping from her body onto the carpet. It struck her as funny; she laughed, nearly slipping from the woman's arms.

"What's the matter with her?"

She didn't hear the reply, she was laughing so hard. There was another door. They stopped in front of it and she became aware of someone slapping her face. She tried to make him stop but he wouldn't and she started to cry. Then a harder slap that rocked her back against the far wall. She recoiled, realized that she was standing on her own and looking into the man's face.

"Are you awake now?" He peered into her eyes.

"Yes... I..." She coughed, and tried to look around her, but he kept pulling her head back until she thought she would cry again. "I... that is..."

"She's all right. Take her in."

The man again. "You follow me, you hear? Just follow me."

She nodded. He seemed to think it was very important and she was willing to do anything if he'd let go of her head. But she was all wet, her hair was all over the place, and she felt clammy. She tried to tell him that, but he had already gone into the room. She felt a shove on her shoulder, and staggered over the lip of the door.

She got a glimpse of the people sitting in the room. There was a man in a funny coat who tickled

her memory. She knew him, but couldn't remember the name. And there was a woman in a chair. She knew that one. It was herself.

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*I never thought I'd meet ex-President Tweed face to face. You can't avoid him on the cube; he's there all the time on one program or another, pushing his crazy schemes. He'd been a fixture on the telepolitical scene since the time I was born.*

*Tweed dressed like a political cartoon from the turn of the twentieth century. He had allowed himself to develop a paunch, always wore striped pants and a clawhammer coat, top hat, and spats. He smoked a cigar, and when elected, called the Presidential Warren "Tammany Hall." And he won elections. Though I never followed it closely, I knew he had been elected to three consecutive terms.*

*He paved the way for the current Lunar clown show we call government. Recognition is all, and the public had shown a perhaps understandable confusion between political rhetoric and the fantasies that surround it on the cube. So now we have our Tweeds, our Churchills, and our Kennedys. There is a Hitler, a Bonforte, a Lewiston, and a Trajan. Put them all in the same place and you might as well call it a circus.*

*Luckily, elected officials don't do that much any more; the posts are largely ceremonial or supervisory over the computers who do the actual governing. I've never been sure if that's such a good thing, but Tweed made me thankful for it. Not that my opinions mattered at the moment.*

*I put political ruminations aside and prepared to listen to whatever pitch he was about to make. It had to be better than what I was facing.*

"Don't get any ideas," he said, in that famous bass rumble. "I'm protected against anything you might try to do."

Lilo realized he was talking about attempts on his life. Nothing could have been further from her mind. He was here, where he had no legal right to be, he had just shown her what had to be an illegal clone; she could think of no reason he would have done these things unless he had something to offer her, and she was very interested in hearing it.

"You will find in our future dealings that I am invariably protected."

"I don't see how that information can be of any use to me unless I'm going to be dealing with you in the future. As you know, my future is limited at this moment." She tried to keep it light, to keep the hope out of her voice, but it was impossible. The guilty weight of the knife pressing against her thigh and the trickle of blood on her arm testified to how much bargaining leverage she could bring to the conversation.

"Yes, you will be dealing with me in the future. You—" he gestured toward the bathroom "—or that... other woman. The choice will be yours."

She could hear voices from the bathroom; the sound of water running and an angry voice that she barely recognized as her own. Her twin was waking up, and she dreaded it.

"What's the choice?"

"First, understand your position. I—"

"I know my position, damn it. Get on with it."

"Be patient. I want you to know a few things first." He paused, then took out a cigar and went through the process of trimming and lighting it. He was an extraordinarily ugly person, Lilo thought,

with the ugliness that only caricature can achieve. As repulsive as a twisted, stunted ghost from the past on Old Earth.

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"The clone was grown illegally, obviously," Tweed resumed. "But you are no longer a useful witness to anything. You will never have a chance to tell anyone what you have seen here today, should you refuse me. Your only contact from now on will be with Vaffa and Hygeia, the two guards you just saw. Both are loyal to me."

"What else can you tell me that I'm so goddam anxious to know? You didn't do all this to taunt me. You're a... never mind. I don't like you much. Never did."

"And I don't like you. But I can use you. I want you to work for me."

"Fine. When do we get started? As you pointed out, we'd better hurry, because I don't have that long to live." But the sarcasm fell flat, even in her own ears, because her throat hurt so badly when she said it. He laughed, politely, and she was so receptive to him that she nearly laughed herself. She stifled it when it threatened to turn into a sob.

"There is that little problem," he agreed. "I'm offering you a chance to bow out of your execution. I'm offering you a stand-in."

He looked at the bathroom door—there were sounds of a struggle—and back to her. He raised his eyebrows.

*The cold water made me gasp and choke, but some of the grogginess washed away. For the first time in that dizzy few minutes I could think straight. More than anything in the world I wanted to sleep, but things were happening too fast, and seemed to be out of my control.*

*Tweed! That was his name. What was he doing out there in the other room, talking to someone who looked exactly like me, in my own cell? And the tank. Had I died? I woke up in a vat, which had to mean that I had died. But I was under a death sentence; I shouldn't be waking up ever again.*

*I pushed my face under the cold stream. Stay awake, stay awake. Something important is happening and you're being left out. I sputtered and gasped, slapping my face and legs and shoulders. I thought I saw it now, and it was dirty, rotten; so bad I couldn't believe it. But I had to.*

*I stumbled and fell against the wall of the shower. The woman guard took my arm and pulled me to my feet. My eyes wouldn't focus. I struck out at her, but she was big and alert and the blow didn't land. Then I was screaming, lashing out.*

She came running out of the bathroom, pursued by the man and woman. The man grabbed her, but she was slippery and powerful with hysterical strength. She got away, kicking at him with her bare heels as they grappled on the floor, then scrambling on her hands toward the woman in the chair. She screamed again.

Banging hard into a table as she tried to get to her feet, she toppled and fell loosely in front of the couch where Tweed sat. The man reached her and started to haul her away, but Tweed held up his hand.

"Let her alone," he said. "I think this is her room, after all." He looked at Lilo, sitting in frozen fascination. She couldn't seem to drag her eyes away from the woman on the floor. "That is, unless you want it."

Lilo tore her eyes from the clone. She opened her mouth to speak, but the words caught in her

throat. The clone was looking at her again. The fear on her face was almost too much for Lilo to bear. To accept Tweed's offer would be to condemn this woman to death. She didn't want to think about that.

But the clone was looking at Tweed now, and Lilo could almost hear her mind working. She gripped the edge of the couch and got to her knees.

"I don't know what you were talking about," she said, "but I think you should tell me. I know I'm not up to date; I just woke up. Things have been happening, I can see that. I got the stay of execution, right? She's who I think I am, but six months later, right?"

"That's right," Tweed said, and smiled at her.

Lilo felt a chill pass through her, and realized she was afraid of the clone. She did not want Tweed smiling at her. There was no reason to think Tweed had a preference; the clone might do as well for his purposes as the original. Nothing said she had to be the one saved just because she was older.

"Whatever the deal is," the clone was saying, "I can be just as good at—"

"I'll take the job," Lilo said, as loudly as she could. Tweed looked at her.

"Are you sure?"

The clone was looking dully from one to the other.

"Yes." She swallowed, hard. "Yes. Kill her. Let me live."

*I felt as though I had suddenly disappeared.*

*Tweed and the other woman were talking right through me, right over my head as I knelt there on the floor. I couldn't believe it. I couldn't follow what they were saying; there was a roaring in my ears and I was dizzy again. I think I hit my head when I fell.*

*I had to make them notice me. My life depended on it. I got up, shakily, and stood between them, but still they took no notice. It was a nightmare. I screamed at them, but it was no use. They were getting up and leaving the room, the female guard imposing herself between me and the door. Her face was hard.*

*I lunged, struggled with the woman, but she held me tightly. They were gone.*

*I went in and out of consciousness, sitting in my chair, alone. Hygeia, the guard, had given me a double-dose of painkiller a few hours ago and I had been sitting there, waiting for it to take effect. My dreams were black and formless, except for the familiar forest I had always run through in my dream—a forest beneath a blue sun.*

*When I could no longer feel much in my hands and feet I got up. Everything went black, and I found myself in the bathroom without remembering how I got there. I turned on the shower.*

*I stared down at my wrist for a moment. There was a deep cut, the blood was pumping sluggishly through my fingers and splattering on my bare legs and feet. How had that happened? My head was thick as soup, but I thought I remembered... I had put the knife down... hadn't I? That woman—what was her name?—had been in my room. Had she tried to kill me, and make it look like suicide?*

*Warm water was flowing over me. Pink rivers wound between my toes. I staggered, and hit my head on the wall. I knew it was too late. I was dying. It was so cold. I would be dead soon.*

~~The spray was in my face. My feet were freezing. I looked at my wrist again and saw that the blood had stopped flowing. I got up, slipped and fell on my face in a puddle of red.~~

*In the main room again. Unable to stand up. I was looking for something. What? There was another blank in my mind. The knife. I was going to finish the job the woman had started. Or was it me? I left the knife... where? In my hand. Hacking, my fingers losing their grip. The knife was gone again. I crawled.*

*I saw booted feet in front of me, tried to stand up.*

*"You passed out again." It was Hygeia.*

*"There's no pain," I told her. "Don't be afraid."*

Circum-Luna 6 was a metal shell, five hundred meters in radius. The gravity on the outer surface was five meters per second squared, but a visitor descending through one of the three entrances would experience a perceptible rise in weight for each step downward. CL-6 had few visitors.

All orbital power stations were "holes," but only CL-6 was known as The Hole. Five or six times a year it was shut down for a few hours so people could descend into what had recently been a hell of radioactivity.

It was shut down now. At the one-gee level a terrace hung beneath the gargantuan field generator which held the black hole suspended in the center of the station. Arcing away from the terrace was a span of unsupported metal with rails on each side and low steps built into it. The thirteen steps were traditional, just a few centimeters high. The stretcher rolled over them easily, the body strapped to it bouncing as the black-clad man and woman pushed it out to the end of the arc.

One of the executioners removed the drape from Lilo's body while the other attached the stretcher to an ejection mechanism. Finished, they stood for a moment under the eye of the camera, then walked down the span and climbed to the surface.

The stretcher tilted, hung suspended for an instant, and then fell. It picked up speed asymptotically, and the interior of CL-6 blazed in hard light. Far down the slope of the hole, halfway to infinity, a tiny mass of neutronium that had been Lilo was orbiting at almost the speed of light, releasing energy as it was stressed to the limits of matter before it finally decayed into oblivion.

*Living Together: A Child's Introduction to the Law*, by Ariadna-Clel-Joule. Tycho-Under Educational, 552. Read-rating I.

There are three kinds of lawbreakers. From bad to worst, they are violators, misdemeanants, and felons.

Violations are crimes like jostling, creating a nuisance, verbal abuse, and body odor: crimes of bad behavior. If you are accused of a violation, you may defend yourself in court. You may demand a human jury. If you are found guilty, violations are punished by fine, either to the offended party or the State.

Misdemeanors are crimes like robbery, burglary, assault, rape, and murder: crimes of property. The more serious misdemeanors are those where the property involved is a citizen's body. All misdemeanors are punished by fines of 90% of the criminal's possessions. In cases of violence to a citizen's body there is a mandatory death penalty with automatic reprieve. The criminal's right to life remains in force, so after execution the criminal is revived at a subjective lifeline point before the first conception of the crime and is required to undergo preventive rehabilitation.

The worst crimes are felonies. These are crimes like arson, sabotage, possession of fissionables, vectoring, blowouting, and tampering with human DNA. Felonies involve a threat to the whole human race, or a large part of it, and are known as Crimes Against Humanity. The punishment for convicted felons is revocation of the right to life. The State will search out and destroy every memory recording and tissue sample of the executed criminal. The criminal's genotype is published and declared outlaw and if detected again will be put to death, as many times as is necessary.

(Read-rating II, see companion volume: *Crime Does Not Pay*. Comics and tapes accessible to verbal request.)

*Vaffa took me from my cell. He hustled me through deserted corridors and into an elevator. I had been curious to see how they were going to get me out of there; thinking about doing it on my own had occupied a great deal of my time over the last year. I had made a study of escapes. Most of them involved bribery, help from the outside, or perseverance, in that order. I had nothing to bribe with, and no one on the outside I could appeal to. As for perseverance, the Count of Monte Cristo would have been stymied by the Terminal Institute. It was three kilometers below the surface. Worse, it was fifty kilometers from the nearest tube station. The only way to get out of it was to walk, or ride the unpressurized induction-rail. For that, a suit was helpful. Naturally, keeping track of suits was the major security precaution.*

*On the way up, I suddenly remembered what Tweed had been doing in the years since his last term of office. He had been appointed Commissioner of Corrections.*

The elevator stopped and Vaffa motioned for Lilo to get out. She had gone about ten steps when he grabbed her arm and directed her through a door. The corridor on the other side was dim and narrow. Vaffa didn't seem worried. Obviously Tweed had many people he trusted at the institute. It looked as though it was going to be easy.

She stopped thinking that when Vaffa directed her to a door marked EMERGENCY AIRLOCK. She stepped inside, and noted with more than casual interest that there was no suit in the small chamber. She stared at the red light on the second door. Beyond it was vacuum.

"Wait a minute," she said, abruptly. "What are you doing?"

"There was no way we could get an unauthorized suit into the institute," he said. "Suits are monitored by a section we don't control."

"Yeah, but—"

"The sensor on this airlock has been disconnected. The computer won't know it's in use. Take these, and put them on." He handed her a pair of thick, flexible boots.

"Wait a minute. I can't."

"You must."

"I *can't!* You're trying to kill me, that's it! I should never have listened to you people. Let me out of here!" She was on the edge of panic. Like all Lunarians, Lilo had a powerful fear of vacuum. It was the enemy they fought from the day they were born, as fearful as Hell had been to earlier humans. She felt physically ill.

"Put them on," Vaffa said, reasonably. "You need them to protect your feet."

"What's... what is it I have to do?"

"If you hurry, you'll be in vacuum for five seconds. A crawler will be near the door, two meters away, at the most."

"What time of day is it out there?"

"The lock is in shadow."

She felt the panic rising again. "No. No, it's impossible." She was going to say more, but he touched her shoulder and held it tightly for a moment.

"If I have to knock you out and carry you, it will be much slower."

She saw that he meant it. He smiled slightly as he saw her realize he was too big for her to fight. So there was only one way out of the lock for her. She put the boots on and faced the door. Vaffa released the latches. The door was still tightly shut, held in place by fourteen thousand kilograms of pressure.

"When?" she asked.

"The crawler must not stop. The guard in the tower must be distracted at the right moment, because we don't trust him. The car will be in range for ten seconds, and it should arrive in one minute." He looked up from his watch, and smiled. "If everything is still going according to plan." For the first time, she thought he had said something he had not been told to say. He stepped out of the lock and closed the inner door.

Suddenly, it was time. She heard a scream that was very familiar, but she had always been in a suit when she heard it before. It was the quick-release valve. Strangely, she didn't feel anything. She belched continually. The sound died away in a few seconds. She yanked the door open, and was running in silence. There was a dark moving shape, a hand reaching out for her, and she was pulled into the crawler. The door shut, and a shriek took form in the air that rushed in to fill the sealed cabin. Lilo was suddenly shivering.

"I made it," she cried hoarsely, and passed out.

A woman was leaning over her.

"Don't move, please." Lilo's left arm felt numb. She glanced down. It had been severed at the elbow.

"This will only take a moment," the woman said. There was a caduceus tattoo between her breasts: a medico. Lilo propped her head up on her other arm and watched.

"What's this for?" she asked.

"We'll be leaving the crawler at a station about a hundred kilometers from here. This is to get you through customs." She took a forearm from a metal lifetank and attached it to her black bag. The white chunk of meat began to color, and the fingers twitched. She popped Lilo's own arm into the tank.

"I'm Mari," she said, with a slight rising inflection on the end. There was the hint of a smile on her face.

"Lilo," she responded, and they touched palms, Lilo's right to Mari's left since Lilo was not equipped at the moment to do it properly.

"That'll be ready in a minute," she said, gesturing to the arm. She was reaching into a bag on the shelf behind her. There were two deep purple robes in it. She stood up to pull one over her head. "You can put that on when I'm done with you."

"Where am I being taken?"

"To see the Boss." There was a tone in her voice that said Mari respected the Boss a great deal. She was a Free Earther. Well, it wasn't exactly a disease. Lilo could tolerate them, except when it came to a fanatic like Tweed who wanted to lead the whole race into oblivion.

Mari got to work again, fitting the elbow joint together, attaching tendons, splicing nerves and vessels. In five minutes the skin sealed up and there was nothing but a faint red line to show where the arm had been grafted. She pulled a plug from the socket at the back of Lilo's head and the arm became more than dead weight. It was full of pins and needles, and cold.

"Sorry about the job," Mari said, packing things away. "You'll only need it for an hour or so, so there's no sense, is there? You won't have to use it much."

"That's okay. I'm right-handed." She made a fist. The arm was about five centimeters too short.

"Oh, really? So is my mother."

"Whose is this?"

"It was grown from somebody who is supposed to be in Luna. We put the genotype through customs every so often so the computer has a record of her... but I don't think I should be telling you this."

"Suit yourself." Lilo had figured it was something like that.

"You don't look very happy for a woman who's just busted out of an escape-proof jail," Mari said. Her smile had grown by stages; now it was wide and friendly. Lilo felt herself smile back.

"I guess I haven't had time to react. I've lived with a death sentence for so long."

Mari shifted a little closer. "Would you like to cop?"

"No, thanks. I guess I'd like to start with a man, after such a long time."

"Sure." The medico turned her attention to the flat, pitted landscape and angular shadows out the window.

Lilo tried to come to terms with the fact that she now had a chance to survive. It still didn't mean



anything to her. She kept thinking of that other woman, the clone, who would die in her place. She began to cry, surrendering herself to the confused emotions that had to get out. It was not until Mari decided she had gone through enough and touched her on the shoulder that Lilo realized how hungry she had been for a friendly face, for the touch of another human being. She calmed down almost at once. Mari started to withdraw her arm, but Lilo stopped her with a touch.

"How long till we get there?"

Mari glanced at the chronometer on her thumbnail. "About two hours. Would you like to cop now? It might be the best thing for you. I know a little of what you're going through."

"Oh, what the hell." So they did. Mari had been right; it did untie some of the knots in her gut. Mari was skilled and considerate, a good player except for a tendency to talk shop. She would kiss something—nose, navel, knee, labia—and want to know who had done the work. Usually the answer was "it just grew that way."

Mari scored most of the points. Lilo was too distracted to pay much attention to what her mouth and fingers were doing. She knew she had been a poor partner, but Mari said it was all right, and seemed to mean it. It was a nice gesture, but didn't seem to merit the second upwelling of tears that it caused in Lilo. When it subsided she knew the medico had brought her out of the emotional pit she had occupied for the past year in a way the intellectual knowledge of her reprieve could not have done. She was going to live!

The crawler stopped at Herschel, one of the smaller warrens on the outskirts of the Central Highlands. Mari drove into town to catch the local tube to Panavision. Lilo kept her eyes open for a chance to run, but they were quickly joined by a man and woman. They laughed and joked with Mari, but it was clear they were watchful. The chance would come, she was sure of it. It would be best to wait until she knew a little more of the situation.

She put her hand into the customs machine and felt the sampler scrape along the dry skin of her palm. It clucked to itself, and was satisfied she was someone else. Too bad she wouldn't be able to keep the new hand, she reflected. It would be invaluable. But tissue rejection made that impossible. In less than a week it would die.

Panavision was an artists' town, full of performers and directors. Many of them had been altered into a part; it was an outlandish place. They joined the line for the gravity train to Archimedes. The four of them boarded, the car was sealed, and Lilo's weight dropped away as the car fell down the inclined tunnel for almost four hundred kilometers. Somewhere under the Apennines the tunnel began to slope up again, gradually slowing their speed to a crawl as the car nosed into the elevator which took them back up to inhabited levels. The trip was over by the time Lilo felt settled in her seat.

The Grand Concourse at Archimedes was frightening. She had forgotten there were that many people or that much noise. There was no time to worry about it; she was hustled through the crowds to a private tube station. When she got her wits back, she saw she was alone again with Mari in an eight-seat capsule.

"Where now?"

"I'm not supposed to say," Mari said, with a shrug.

It didn't take Lilo long to figure it out. Most Lunarians know little selenography. They might not get out on the surface more than once or twice in several years, most likely for a trip like that Lilo and Mari were taking: enclosed in a capsule riding an induction rail while landscape whizzed past the

windows. But Lilo knew the surface map pretty well. They were going north into the Imbrium flats, and when peaks began to loom up over the horizon she knew it was the Spitzbergen Mountains. So that was where the Boss lived. That kind of information was not exactly a state secret; but it was not advertised, because of the constant danger of assassination.

Tweed's home was on the surface—as it logically would be, Lilo realized, so he could see Earth at all times. Tweed was obsessed by Earth, and by the Invaders. There was one massive geodesic, surrounded by clusters of smaller ones. A spidery telescope with a twenty-meter mirror stood in the shadow of a cupola. It was trained on Earth.

Mari cut away the arm and replaced it with the original, then said Tweed was waiting for Lilo in the main dome. She pointed the way. Lilo took her time, looking into open doorways she passed. There would be just the one tube station, and the suits would be carefully watched. She fully realized this was as much a prison as the institute had been, but the time to start planning was right now.

Water was flowing down the hall. She splashed through it until the hall became a brook running through trees, in an artful mix of holos and real plants. She hadn't detected the transition. The creek bed was lined with polished stones of varicolored crystal and the deeper pools were full of fish. A panther studied her from the shore, joined her as she reached dry land, and stropped himself against her after smelling the fur on her calves. She fussed with him for a while, then sent him away with a cuff on the head.

The trail led to a clearing, and in the clearing was Tweed, sitting in a chair with a nude woman standing beside him. She spotted a man, also nude, in the trees at the edge of the clearing.

Lilo had been trying not to be impressed, but it was useless. She had no idea how much money it took to maintain a pocket disneyland like this, but she knew it was a great deal.

"Sit down, Lilo," Tweed said, and a chair unfolded from the high grass. She did, putting one foot up on the seat. She searched the pockets of the robe, found a brush, and began to comb the burrs from the wet hair on her legs.

"You've already met Vaffa," Tweed said, gesturing to the standing woman. Lilo glanced at her, noted the stance and the attitude of the hands. This woman could kill her in a second, and would. She had *thought* there was something familiar in the eyes.

"How many of them do you keep?" she said. There was a boa constrictor, fully twenty meters long, coiled in the grass at the woman's feet. "That's a hell of a pet."

"You don't like snakes?"

"I wasn't talking about the snake."

Tweed chuckled. "Vaffa is very useful, loyal, smart as can be, and totally ruthless. Aren't you, Vaffa?"

"If you say so, sir." Her eyes never left Lilo.

"In answer to your question, there are many Vaffas. One here, the other who helped you escape a few hours ago. Others in other places." Lilo did not need to ask why Vaffa was so useful. Though the faces and bodies were entirely different in the two she had seen, the feeling was the same. This was a killer. Quite possibly a soldier, though Lilo was not expert in mental diseases.

"Tell me about the Rings," Tweed said, unexpectedly.

"It was brought out at the trial," Lilo stammered. "I thought you knew."

"I knew, but I'm not convinced you were telling the whole truth. Where is the life capsule?"

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"I don't know."

"We have ways of making you talk."

"Don't give me that crap." Tweed had a habit of talking that way, like an actor reading his lines in a third-rate thriller. "It's not a question of telling you," she elaborated. "I admitted setting it up. If I knew where it was, it wouldn't be much good to me, would it?"

At that moment, Lilo could see it might do her some harm instead of good. Tweed seemed unhappy, and that was disturbing. Keeping him happy had become very important.

Five years earlier, when her research began taking her into areas where she might expect to have trouble with the law, she had decided to build the capsule. She had contacts among the Ringers, and the money to get the project going. The idea, which had looked good at the time, was that if she got caught and convicted, her work could go on without interruption. Now she was not sure her motives had been that selfless. The urge to live is a strong one, as she had just learned.

"They questioned me with drugs," she said. "I have a friend out there. When I left the capsule, she moved it. I can't lead anyone to it. I don't know where it is."

"This accomplice," he said. "Did you have any way of getting in touch with her?"

"Have you ever been out there?"

"No, there's never time." He shrugged expressively. Lilo had seen it before, on the cube. Tweed was adept at the self-effacement routine, playing the part of one who's always busy with the People's work.

"Well, the Rings are *big*. If you haven't been there, you can't know just how big. I might get in touch with her by radio, but we couldn't think of a way she could be protected, too. I mean, anything could be drugged out of me, and she'd have no way of knowing if she was being lured into something. It was hard enough to get her involved in this, anyway. Ringers tend to be solitary. They don't worry much about other people's problems."

"But you have a way of getting in touch with her?"

"If you mean finding her, no. I can leave a message at the Janus switchboard. She calls every twenty years, like clockwork."

He spread his hands. "Not very efficient."

"That was sort of the idea. If it was easy for *me* to stop this project, it would be easy for someone who knew what I knew."

Tweed got up and walked slowly a few paces away, looking at the sky. The snake stirred, and coiled around Vaffa's leg. She bent over to stroke it, never looking away from Lilo.

"What was the name of this accomplice?"

"Parameter. Parameter/Solstice."

*Song of the Rings*, by Clancy-Daniel-Mitre. A collection of early human-symb collaborative poetry.

Circa 240-300 O.E. Open read-rating.

Of all the things received over the Ophiuchi Hotline, none is more wonderful than the symb. In the early part of the third century, symb was seen as the salvation of the human race. Futurists saw the day when each human would be paired with a symb partner and forever free of reliance on airlocks, hydroponic farming, and recycled water. Each human would be a tiny model of lost Earth, free to roam the solar system at will.

It's easy to see what inspired the optimism. The symmetry of the concept is overwhelming. Each human-symb pair is a closed ecology, requiring only sunlight and a small amount of solid matter to function. The vegetable symb gathers sunlight in space, using it to convert human waste and carbon dioxide into food and oxygen. At the same time it protects the fragile human from vacuum and the extremes of heat and cold. The symb's body extends into the lungs and through the alimentary canal. Each side feeds the other.

What we didn't bargain for is the mind of the symb. Since it has no brain, a symb is nothing but a lump of artificial organic matter until it comes in contact with a human. But upon permeating the nervous system of its host it is born as a thinking being. It shares the human brain. The early experimenters learned that, once in, the symb was there to stay. Since that time relatively few have opted to surrender their mental privacy in exchange for Utopia in the Rings.

But out of the disappointment we have been given a precious gift. Ring society is not human society. We live in rooms and corridors; they have all of space. We each have the right to be the mother of one child in our lifetimes; they breed like bacteria. We are islands; they are paired minds. This is a relationship that is difficult to imagine.

Somewhere in that magical junction of two dissimilar minds a tension is created. Sparks are struck, sparks of dazzling creativity. All Ringers are poets. Poetry is a normal by-product of living. To those of us without the courage to pair, who wait for the infrequent contacts of Ringers with human society, their songs are beyond price.

Parameter floated over a golden desert that no horizon could contain. She faced the sun, which was a small but very bright disc just to anti-spinward of Saturn. Saturn itself was a dark hole in space edged by a razored crescent with the sun set in it like a precious stone.

She saw none of this. She perceived the sun as a pressure and a wind, and Saturn as a cold, deep well that pulled.

The sunrise had been delicious. She could still taste the flavors of it flowing through the wafer-thin part of her body that had opened to receive it. She was a sunflower.

Sunflower mode was a lazy, vegetable time. Parameter had Solstice, her symb, disconnect the visual centers of her brain so she could savor the simple pleasures of being a plant. Her arms were spread wide to the light and her feet were planted firmly in the fertile soil that was her symb. It was a good time.

Seen from the outside, Parameter was the center of a hundred-meter filmy parasol, slightly parabolic. She was a spider sitting in the middle of a frozen section of soap bubble, but the section was

shot through with veins, like the inner surface of an eyeball. Fluids pumped through the veins, some milky, some deep red, others purplish-brown. From a point near Parameter's navel a thin stalk—extended, with a fist-sized nodule at the end of it. The nodule was at the focus of the parabola and received the small percentage of sunlight that was reflected from the sunflower. It was hot there, a steamy center for Parameter to revolve around. In the nodule and in the capillaries of the sunflower, chemical reactions were going on.

Activity in her brain was damped down to almost nothing, interrupted only by the passing peaks of Solstice, who never went completely to sleep.

"Parameter." It was not a voice, even when Parameter was more fully conscious. It was words forming in her head, like thoughts, but they were not her own thoughts.

"(Recognition; slight reproach; receptivity)"

"Come on. Wake up."

"What is it?" Coming awake was effortless.

"Are you ready for vision now?"

"Sure. Why not?"

Solstice, functioning as a switchboard in the back of the cerebrum, closed the contacts that would allow Parameter's visual cortex to communicate with her forebrain: She saw.

"What a lovely morning."

"Yeah. Very nice. Wait till you see the morning papers. You won't be so happy."

"Can it wait? Why ruin it?" Parameter felt no sense of urgency. It had been a century since she felt rushed.

"Sure. Let me know when you're up to it."

Parameter communicated wry amusement to her symb. (Picture of herself buckling on sword, dagger, donning brass helmet and picking up embossed shield.) Solstice responded. (Picture of Parameter climbing a staircase, gazing at the stars, failing to see she was reaching for a top step that wasn't there.)

Parameter stretched, causing the filmy parasol to undulate slowly. She made tight fists of all four hands—she had no feet, having surgically replaced them with oversized hands at the time of her pairing—then spread twenty fingers. One hand caught her attention. It was pale, but was turning pinker as she watched. She had the coloring of an albino; the skin under her nails was amber, turning quickly to orange. Solstice was packing up, pumping liquids around, getting ready to move.

Nothing she saw was real. Her eyes were protected behind the opaque substance of Solstice; no light had fallen on her retinas in over seven years. Had she looked at the sun with her eyes, as she seemed to be doing, cells would have been destroyed. What she saw was the product of nerve impulses sent to different areas of her brain by Solstice's sensory receptors. But it looked to her as though she were floating naked in space, feeling the raw sunlight on her body. The illusion was complete.

"Okay. What's up?"

"This is up. I monitored this broadcast two minutes ago. It came from the Janus transmitter, channel nineteen. Where do you want it?"

"I don't care. Anywhere."

A three-dimensional image built up between Parameter and the dark semicircle of Saturn. It looked as real as anything else she could see. The view was the interior of a room. It could have been any room, but the woman sitting in it was someone Parameter knew. The voice-over explained that Lilo, the convicted Enemy of Humanity, had been put to death. It gave the time, the place, and a brief summary of her crimes. As the commentary moved on to a lecture about the evils of genetic experimentation, Solstice tuned it out without Parameter needing to ask for it.

"We knew it would happen," Parameter pointed out, wondering why the news did not affect her more.

"So did she."

"Okay. Where is she now?"

Her view shifted. Saturn appeared to rotate beneath her until she saw the Rings from the top. She seemed to be hovering over the north polar region.

At the bottom of the Ring, near where the shadow of Saturn cut across it, a small green arrow blinked on and off.

"That's us," Solstice said. Further around the curve of the Ring, about sixty degrees to spinward, a dark red arrow appeared. Its color told her the mass of the rock in question. It was on the edge of Ring Alpha, the outermost of the rings, where perturbations would not have been severe over five years.

Solstice caused the picture to zoom in. There was Lilo's life capsule as Parameter had last seen it, retrieved by Solstice from areas in their common brain that Parameter could never reach without hypnosis.

It was a rock—slightly larger than average, but in all a quite ordinary rock. Inside it was a nuclear generator, a computer, a modest rocket engine, a life-support system—and Lilo. Or someone who could become Lilo; a clone who, when Lilo's recorded memories were played into her, would become the Lilo of five years ago.

"Has it really been five years?"

"And sixty days and three hours, Old Earth Corrected Time."

"Doesn't seem like that." She studied the two arrows again. It was a long distance.

"One hundred forty-one thousand eight hundred and ninety-five kilometers, as the rock rolls," Solstice supplied.

"Well, we made a promise, didn't we?"

"I was waiting for you to say it."

It was six years ago they had first met her. Lilo had set up her private research station on Janus, hoping that the status of that satellite as the interface between human and pair society would mean less vigilance, looser enforcement of the genetic statutes. Parameter/Solstice had met her there on one of their infrequent visits, and they had immediately liked her. That was rare for them. Humans and pairs do not generally mix.

They had hung around her small lab while they were on Janus, and when they were ready to leave they had suggested she move her entire operation into the Rings. Lilo had not been willing to go that far, but had approached them with the idea of setting up a robot station on the edge of the Rings. She was worried about getting caught. They had agreed to supervise the awakening of the clone if she ever needed it.

Now the long journey was ahead of them. It was impossible to hurry. Though they could reach speeds of fifty kilometers per hour in their travels, they had to stop to feed each day. It would take them nearly a year to reach Lilo.

"Well, every trip starts with one push," Solstice said. "Let's go."

*I'm not a frequent visitor to any of the disneylands. To me, a desire to work in the dirt with your bare hands and eat dirt-grown food is harmless, but silly. It makes us yearn for something we can never have, something that's always up there in the Lunar sky. It leads to lunatic fantasies like the one that had obsessed Tweed for so long: the retaking of Earth, the liberation of our home planet from the Invaders.*

*I grew up surrounded by metal, and have never felt deprived because of it. Stories of Old Earth glories leave me unmoved. Our frontiers will be found not by trying to recapture the past, but by looking within ourselves. I had tried to do that, and ended up in jail.*

*Tweed must have set the thermostat on his private paradise at around forty degrees. I was sweltering. Maybe the plants needed a summer, but I definitely didn't. And some unspeakable little vermin had found their way into my leg hair. Nature. I stripped off the bulky robe and tried to cool myself while Tweed pondered my fate.*

Lilo saw Tweed make a signal to the man on the edge of the woods. She tensed. Was this it? He could decide she wasn't worth the trouble—she *still* didn't know what he had in mind for her—and things could start to happen fast. She watched Vaffa carefully. If they came at her, she vowed to do some damage on the way out.

But Tweed was hurrying through the thick grass. Vaffa relaxed a little when Tweed had gone out of sight. She sat in the grass and stroked the snake. This female Vaffa was two and a half meters tall, had no breasts and very little fat anywhere, and was completely hairless. She was bone-white all over. A death's-head: spare, economical of movement, powerful and lethal.

Someone came running through the field toward them. Lilo wondered why anyone would run in this heat. Was she in trouble? But it was sheer high spirits. She saw the tattoo first, then the face.

"Hello, Mari."

"Hi," she gasped. "Isn't it *wonderful*? Being here, I mean."

"Uh-huh." Lilo slapped at something that buzzed; her hand came away red. Bloodsucker!

"Hi, Vaffa." The woman nodded to Mari. The medico was covered in sweat, and seemed to love it. She stood for a moment, getting her breath back. "You're supposed to come with me," she said.

"What for?"

"I have to make a recording of you. Boss's orders. Come on, it won't take a minute."

Lilo knew it took a bit longer than that, but followed her along a path leading into the woods. Turning, she saw that Vaffa was following, giving more attention to the snake than to Lilo. It wasn't very flattering. It would have been nice to think of herself as dangerous, but Vaffa did not seem impressed. Well, that was probably best. Maybe she'd get a surprise one day.

She had thought she would be taken back to the more conventional part of Tweed's residence. Instead they went to a glade in the middle of a dense forest. There was a waterfall nearby. Mari had carried her bag with her; now she set it on the ground and gestured to Lilo. A thin plastic sheet had been spread on the ground.

"Right here?" Lilo said. "Don't you need..." But Mari was opening what looked like a tree stump. Inside was metal.



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