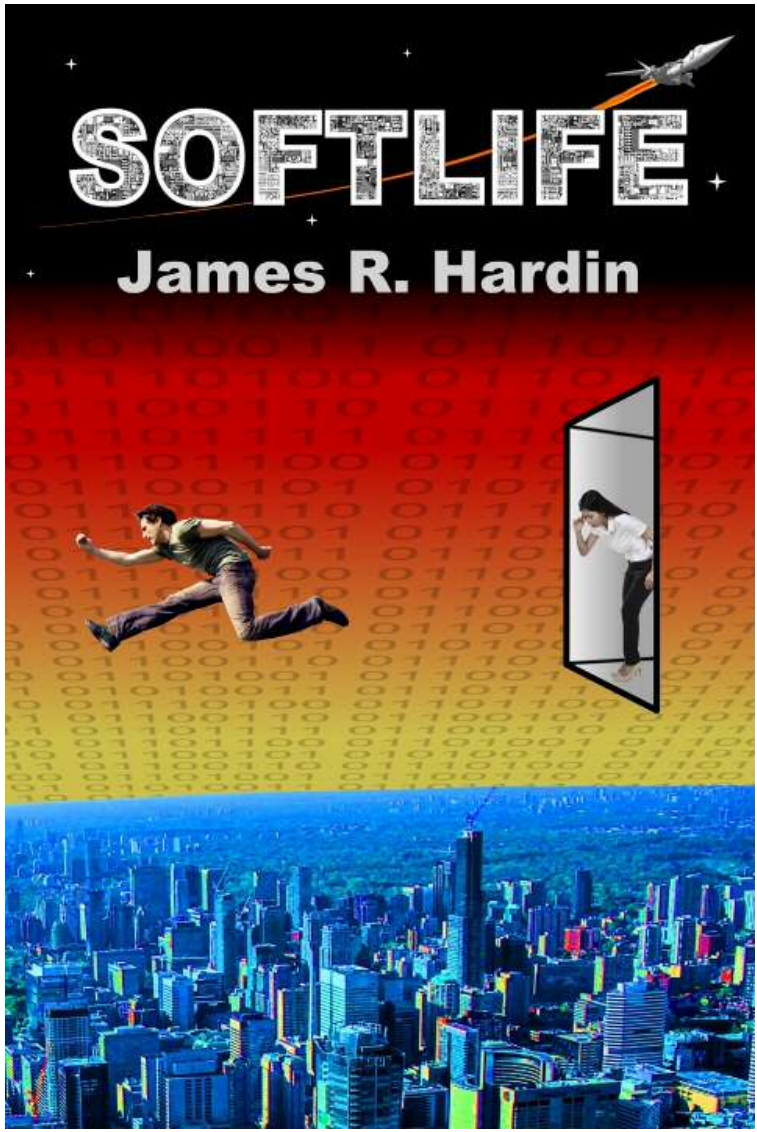
SOFTLIFE
James R. Hardin

Softlife

Sample - First five chapters

James R. Hardin

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Five Years Earlier

Chapter 1

"History will be made today," Jason Sangretti said, "and you two are going to miss it, glued to that computer." He floated in the air positioned as if he were sitting in an invisible easy chair facing the large monitor on the wall, even drumming his fingers on the nonexistent chair's arm. He didn't really mean to be showing off his expertise in zero gravity—OK, maybe he did. As young as he was, his Space Force training still put his capability far ahead of even the experienced spacecraft construction workers here on the Starbase.

Amos gave Jason a brief look, but William's eyes never left his monitor as he said, "This is not unique. Since history is the accumulated sequence of past events, history is made every day." He drifted in a contorted position beside his computer, clinging to it with one hand and awkwardly correcting for the reaction as he typed on it with the other. Jason had never seen William in normal gravity, but he was sure William would be awkward there as well.

"You know what I mean. Isn't it great to be alive on a day like this?"

"I have no experience being in a state other than alive, so I have no basis for comparison."

With two precise flips of his arms, Jason rotated his imaginary chair to face William. "Now you're just being annoying on purpose."

William finally looked up and grinned momentarily, then just said, "Yes, I am," and returned to his typing.

Amos spoke up. "Well, *I* know what you mean. Today the first Jumpship flies! Humanity reaches the stars! History will judge this flight of this *Wilbur Wright* even more important than those by the original Wilbur and his brother."

Jason smiled, glad to receive such support from the normally reserved Dr. Amos Choza. William might be a terribly smart guy, but he looked like an underachieving first grader next to Amos. William, however, paused his typing long enough to give a dismissive wave and said, "You know perfectly well that no member of humanity will ever reach any stars in that ship."

That was true, of course. Jason was no expert in Dr. Rotigan's faster-than-light theory—no one besides Dr. Rotigan was, actually—but he knew that the Jump process converted its considerable inefficiency into gamma radiation, emanating from every particle of matter in the ship. People like William had struggled for years developing computers that could operate reliably under such conditions. No one had developed a way to enable a crew to survive. That was why the *Wilbur Wright* had been named for the Wright brother who stayed on the ground and watched during that famous first flight, waiting for his turn.

But *still*— "C'mon, William! Isn't there anything you're not cynical about?"

"I pride myself on my lack of cynicism, but lately I've been skeptical about it." William smiled at his little joke, but the expression faded quickly. "Today, however, my frustration has pushed my suppressed cynicism to the surface. I know that someday, some of the most sophisticated computer code in history will ride the *Wilbur Wright* to the stars, but it won't be today. Today, we have to settle for this kludged piloting software, and even it still isn't configured to my or Amos's satisfaction. So I would appreciate it if you would stop taking up our limited time with this pointless banter."

Jason turned back to the blank monitor on the wall. He wasn't angry. That was just how William was: very focused, and prone to say exactly what was on his mind. Besides, William and Amos were doubtless feeling a lot of pressure. Amos had been brought into the Jumpship project to write the required autonomous piloting software. He was perhaps the world's leading authority on artificial intelligence, having been a brain surgeon and medical researcher before deciding to change careers and apply that knowledge of brains to software. His genius was remarkably flexible.

Amos's original plan had been to develop the piloting software from some of his earlier work on artificial intelligence based on the human brain. This had always struck ever-practical Jason as overkill, like driving a thumbtack with a sledgehammer. Amos didn't talk much about his work (nor about anything else, really), but Jason knew that he'd never been able to get his experimental software working. As the date for the launch approached, Amos had finally decided to switch to conventional piloting software for the maiden voyage, and he'd solicited William's help to get all the necessary modifications done in time. Apparently that process was still going on, and getting it done "in time" was going to be touch-and-go.

That explained why two major players like Amos and William were down here in the Starbase's machinery level with the six remaining

spacecraft assembly workers and Jason, rather than up in the habitation level with the administrators, crew chiefs, and other VIPs. A transport ship was due to arrive in a few minutes, and everyone who would fit in the space was waiting up by the docking ports. Everyone else was here in the main construction work area, waiting to watch the proceedings on the large monitor. The ship was carrying Dr. Clyde Rotigan himself, coming to see his creation off, and also the head of NASA, some US government dignitaries, and some reporters.

Jason, as the Space Force liaison for this project, was sort of a VIP himself. But he wasn't surprised that he'd been asked to stay down here with the others. The government tried to downplay the military aspects of the Jumpship project and emphasize the scientific ones. The tactical implications of a ship that could Jump instantaneously from one point to another were understood by everyone, and other nations were unhappy that the United States was about to become the only country with this capability. Some official had probably decided that they didn't want Jason's Space Force lieutenant's uniform in the video feeds as everyone mingled in the habitation level.

Jason preferred to be here with the real workers anyway. He knew them all well and felt he belonged among them. Getting to know people was part of his assignment, since he was to watch for any sign of terrorist infiltration in this desirable, high-profile target. Beyond that, he had often pitched in and helped them do their work, since filling out liaison reports and such didn't keep him busy full-time.

How great it was to be here at all, regardless of which room he was in! How much better his Space Force tour was turning out than he could have hoped! Not quite thirty years old, and a participant in history being made, no matter what William said! He'd been hesitant about joining this new, small, underfunded branch of the Air Force, but he'd done well in the academy and all his training, and had made a name for himself among the few officers there were. He'd been even more hesitant about requesting this prize assignment as the liaison to the Jumpship project, but he'd beaten out all the other applicants, even those older and more experienced. He wasn't sure what could top this for his next career move, but he was confident he could find it and rise to the challenge.

The big monitor flashed blue, then settled to an image of the *Wilbur Wright*, docked at its own special port off the machinery level, as seen from external camera 5. It was the strangest-looking spacecraft Jason, or anyone, had ever seen. The *Wilbur Wright* was huge, almost as big as the Starbase itself. It consisted mostly of a large cylinder with an even larger ring on either end, the two poles of the Rotigan field generator. A pair of conventional engines and several thrusters dangled from struts protruding

from the central cylinder, like afterthoughts tacked onto the giant Jump machinery. Winding among these was an open framework adorned with numerous mysterious modules of various shapes. The ship reminded Jason of a giant dumbbell with scrap metal pieces stuck all over its handle. This misshapen assortment of parts was obviously not designed to handle high acceleration nor to fly through atmosphere. The ship had been constructed here in space and would never visit a planetary surface. Even if it had been able to land, the residual radiation after its first Jump would make it unwelcome on Earth. A thick, heavily shielded wall stood between it and the rest of the Starbase.

The view switched to the gigantic Earth hanging among the stars. Jason spotted a small point of light to the left of the Earth and sliding toward it. No doubt it was the transport ship, firing its main engine to finish matching the Starbase's orbit.

The light seemed to stop moving when it reached the center of the view, and simply began growing brighter as the ship neared the Starbase. Jason frowned. If the transport pilot had matched velocities correctly, he or she could have shut off the main engine and just used maneuvering thrusters to fine-tune the approach. This looked like pretty sloppy flying to him.

The ship grew larger. It seemed to be growing larger too quickly. Maybe the magnification on the camera was higher than he expected, and it was tricking his perception. Still, the bright halo around the small dot he could now make out implied the main engine was still firing. What was the pilot doing? Were they incompetent, or trying to show off, or —

The ship suddenly swelled to nearly fill the screen. Jason had just drawn a breath to shout a warning when the reverse thrusters fired, seeming to set the approaching ship ablaze. Jason's first thought was *About time*, but he quickly realized the thrusters were far too little, too late.

The room abruptly lurched with a deep, rumbling groan. Mark, one of the final assembly workers, had been floating beside a table, and it slapped him across the space like a ping-pong ball. One flailing leg kicked Jason as he went by, sending him tumbling backwards and up. Jason used his bounce off the ceiling to orient himself, then caught the far bulkhead with his legs, absorbing his momentum. He flicked his gaze rapidly over all of the room's thrashing occupants, making sure no one appeared injured.

His Space Force training had taught him to recognize the sound he heard now: the high-pitched squeal of air rushing out of small punctures. He heard several different pitches, indicating several holes. He looked at

the outer bulkhead nearest where the transport ship would have been and froze in disbelief.

A large I-beam, about 40 centimeters across, protruded more than a meter into the room through the wall. Against all common sense, it had torn its own shape through the wall and now mostly filled the hole, so air was leaking only through the small gap around the beam. If it had followed the more usual behavior of tearing a gash as it entered, or even been pushed out of its hole by the differential pressure, they would all be dead by now.

And that could still happen at any moment. Jason snapped out of his reverie and sprang toward a welding kit strapped to a nearby table. It was fortunate that they were in the main workroom, where most of the tools were. “Sue!” he called as he unfastened the kit. “Meet me at that I-beam!” She dazedly turned to look where he gestured. When she saw the beam, she focused and launched herself toward it. He pushed the kit to her and said “Give us a seal weld all around the perimeter.”

He scanned the rest of the outside wall and found several more small holes. “Qing! Grab a cutter and start slicing that workbench into, oh, about 10-centimeter squares. We need patches. Mark! If you're OK, come here and help me cover these holes.” By the time Sue was done with the beam, Qing had several makeshift patches ready. Jason showed Mark how to guide one into position, then let the air pressure near the hole snap it into place. Sue followed them along the wall, welding each piece to the bulkhead.

Jason next glided over to William, who had worked his way back to his computer. “What's our status?” he asked.

“I'll start with the obvious. All of us appear to be intact.”

Jason scowled. “Dispense with the obvious. What about the station overall? What about the people up in the habitation level? That's probably where the ship hit, judging from the last view we had.” He glanced up at the large monitor, but it was blank.

“I'm not getting much. Most of the instruments are offline. Some of the cluster nodes are, too. I'm not getting any evidence of activity up there.”

Everyone looked up at the closed airtight hatch in the highest point of the bowed ceiling. Beyond it lay the short tunnel that led to the matching hatch in the floor of the habitation level.

Laura had not moved from where she'd drifted after the collision, but now she suddenly came to life. Without a word, she leapt up to the hatch and slapped the button beside it. The door obediently slid open.

"Laura, wait!" Jason called. But she wasn't waiting. Even as he sprang toward her, she yanked herself into the tunnel and struck the button beside the upper door.

Nothing happened, except that Laura drifted back down out of the tunnel, propelled by the recoil from hitting the button. "It's red," she said in a small voice.

The indicator light on the door glowed a steady red. They all knew what that meant. The safety interlock refused to allow the door to open, because there was no air on the other side.

"We don't know what's happened up there," Jason said. "Maybe they ran to another airtight chamber. After all, they saw it coming just like we did."

"Yeah, and none of *us* moved," Mark said. "But at least they went fast. What's our life support looking like, Willie?"

"Power seems OK. Heat seems OK." William clicked a few more keys. "Water seems OK. I'm getting no indication on the air system."

"Then let's have a look—oh," said Jason. The air system, a terribly complex, computer-controlled set of algae tanks and blowers, was located in the equipment room next door. The indicator on the door glowed red.

"Are you saying we have no air?" Mark asked, his voice higher than usual.

"No, I said I'm getting no indication. The sensors aren't functional. If they were working, they could tell me definitively if we had no air."

"So we might have air," Jason said.

William looked up from his monitor, exasperated. "I'm getting no indication. That means I don't know. And I still won't, no matter how many times anyone asks me."

"And that's a single door rather than an airlock, so we can't even open it and look," said Mark.

"If we had spacesuits in the first place," added William. "But all the ones on this level are stored in that equipment room."

"Yeah, in hindsight, that wasn't somebody's brightest idea," said Jason. "But now that we've stopped the leaks, we should be fine. Even if they have to prep a ship and launch from Earth, somebody should be here in a few hours. It'll be sooner if they can just divert something that's already up, maybe down at one of the normal platforms. Then they can just waltz in here through the airlock." He looked across the space at the airlock door that led out to the *Wilbur Wright*'s docking station. A red light shone from it. "Hmm. I guess they can waltz in through the airlock formed by the doors between levels."

"Shouldn't we send a distress call or something?" Sue asked.

"The situation must be pretty obvious. I'm sure they were watching everything. Still, it's not a bad idea. William?"

But William glared at his monitor. "No. No radio communication at all. Not with Earth, not with spaceships, not even with our own wireless networks. Absolutely everything is down." He glanced up at the ceiling. "The communication equipment was all on the habitation level."

"Well, then, let's just keep an eye out for them. Have we still got external cameras?"

"Some of them." He clicked a little more, and a field of stars appeared on the large monitor.

Something was flickering off to the left. The Starbase was in an unusually high orbit; how could another ship have gotten here already? "Can you zoom in on that?"

The object grew until it became a slowly rotating dumbbell, with light flashing off pieces along its handle. Amos sighed loudly and breathed, "No."

"It'll be all right, Amos. The *Wilbur Wright* was on the opposite side of the Starbase. The impact must have knocked it loose from its clamps, but I'll bet it's not seriously damaged. They'll recover it."

"Now what do we do?" asked Sue.

Jason settled back into his easy chair pose. "Now we just wait. Shouldn't be long."

Quiet conversation soon started among the assembly workers. Then Mark called, "Jason! You're the pilot here. How could an accident like this have happened?"

"It's impossible to say." But Jason thought about that long main engine burn, and the fact that the ship hadn't even tried to veer away. To him, it didn't look like an accident.

Chapter 2

Twenty-four hours later, no one had come to rescue them. Jason could hardly imagine why not. There had been no news of impending wars or natural disasters as of yesterday, when they'd still had contact with Earth. The external cameras confirmed that the Earth hadn't simply vanished. Moreover, on maximum magnification, they could pick out some moving specks between the Starbase and Earth that implied spacecraft traffic among the ordinary orbiting platforms far below.

No one had slept much. The mood was sullen, and conversations were few and subdued. William had set up a program to continuously monitor the oxygen level. It had crept down a little since yesterday. The air system was apparently working, but not well; the level should have stayed rock steady. But the reading was nowhere near the danger level. Yet.

The whole water system was working, lavatory and all. But they were getting hungry. William had located three maintenance robots still plugged into their charging cradles on the outside of the Starbase, and consequently still connected to the network. Like most robots, these were just computer-controlled machines, with no intelligence built in. Fortunately, their lack of intelligence was more than offset by Amos's abundance of it. He had written a sophisticated program to make one fly to the habitation level on its thrusters, locate and gather supply containers from the galley, and bring them here through the tunnel between levels. William had overridden the interlock on the outer door so the robot could open it.

When Amos had launched the program, the robot had disappeared from the network, presumably disconnecting itself and beginning its mission. But with no wireless communication, there was no way to tell.

An hour and fifteen minutes had passed.

A muffled clunk emanated from the tunnel behind the closed door. Everyone stared at the hatch.

After a moment, William announced, “The outer door shows as closed. Everyone maintain a safe distance.” He pressed a key, and the

inner door slid open. A sudden squeal fell to a whoosh and died out as air rushed into the tunnel.

The robot flexed its four spider-like legs and popped out of the small tube. The grippers on the ends of two legs grabbed the remains of the workbench Qing had cut up yesterday. The camera on top of its boxy body, where Jason felt a head should be, swiveled once, looking the room over. Then the whole 2-meter-tall assembly froze, clinging to the workbench. Two of its arms were empty. The other two held a single large gray box.

"Just one?" Mark asked.

"The pattern-recognition routine should have enabled it to distinguish between damaged and undamaged crates," Amos said. "This is presumably all that it found. But I had the camera recording the whole time. Let's check."

William stretched a cable to the robot and plugged it in. The large monitor on the wall lit up with a view of the stars past a couple of structural members on the outside of the Starbase. The beams seemed to move closer as the robot replayed leaving its cradle and beginning its journey.

Soon the view slid sideways as the robot turned and looked at the Starbase. There was a collective gasp. The transport ship was no longer there, but the enormous hole it had left in the side of the habitation level remained. The robot approached the jagged edges of this open mouth. It paused where the airlock for Docking Port 1 should have been, but Amos's routine quickly realized it didn't need to open the door. The robot switched on its lights and entered the dark cave.

The destruction was thorough. Much of the interior had been torn apart by the thrusting nose of the transport ship, and everything visible had been scorched by the ship's reverse thruster fire. There was no sign of life, nor of remaining bodies, nor of potentially airtight spaces where anyone could hide.

A hole had been torn through the galley. This one supply container had apparently snagged on a cable and not followed its companions into space. There were no other containers, damaged or otherwise.

They watched the rest of the recording until they saw their own blank faces in this room. Jason was annoyed to see that he'd looked as slack-jawed as the others. He was going to have to do better if he was going to keep morale up.

He glided to the robot and opened the box. "It's full. These things hold a lot. We should have enough to last until someone comes, although we probably ought to go on pretty strict diets." He almost made some

remark about silver linings, but realized humor wasn't going to work right now.

Mark appeared beside Jason and peered into the box. “Lots of it is concentrate. And lots of it is frozen.”

Sue said, “We've got water. And we can build an oven pretty fast from all the stuff in this room. We'll be OK.”

Jason looked around his little group and smiled inwardly. They were holding up pretty well, considering what they'd been through. Even Mark, cynical at the best of times, just seemed a little more pessimistic than usual. He was more worried about Laura, since his background file on her said she was on medication for chronic depression. Come to think of it, her pills would doubtless have been in her quarters in the habitation level. But she should have missed only one dose so far, and surely they’d be rescued before that was an issue.

William, of course, would be unflappable no matter what happened. Where was Amos? Jason found him floating beside the Node 2 computer, not far from the Node 3 computer he and William had been sharing earlier. He stared intently at the screen and tapped keys now and then. Whatever he was doing, it was keeping him occupied, so it was good as far as Jason was concerned.

Jason turned and continued reviewing his personnel. He was the youngest person here, and despite his extensive training, he had less actual space experience than most of the others. But somebody had to take care of this group, and he was the Space Force officer. He didn’t need anyone to take care of him.

***

Jason wasn't sure exactly when he'd realized they were going to die here. Certainly a week ago, when Amos's robot had brought in the crate of food, he'd still been confident someone would rescue them soon. But as time passed and the food supply dwindled by half and the oxygen level crept lower, he'd gradually accepted the fact that no one was going to come in time, if ever.

No, he told himself, they were only *probably* going to die here. There was still time. Even if Earth had given up on them, surely someone would come to the Starbase soon, if only to salvage parts.

The conflicting voices continued their argument in his head. No, he wasn't really hearing voices. That wouldn't happen until the oxygen level fell a lot further. No, he shouldn't be entertaining that kind of dark humor. But what the hell, why not?

Laura's medicine was obviously wearing off. During her most recent crying jag, as he'd held her and tried to find encouraging words, she'd whispered that she was tempted to just crawl out their improvised airlock and be done with it. He'd talked her out of it, of course, but secretly he felt she had a point. A quick death beat a slow one. It was too early for that kind of thinking, though. For now.

His troops were doing OK, considering. No one had become violent, no one had had any panic attacks, no one had suggested cannibalism if the food ran out except as a weak attempt at a joke. They were all just drained. And Jason felt his soul dribbling out into the same murky puddle as theirs.

Amos and William had hardly looked up from their two computers for the whole week. Jason hadn't paid them much attention. But now William was building something from the generous supply of materials available in this room. He paused, holding an assembly of straps and loose wires, then fit it on top of his head like a nerd's fashion statement.

Jason's natural curiosity had been considerably suppressed by this depressing week, but that was too much. He called over, "William! Amos! What in the world are you two up to?"

William froze, looking at Jason like a small boy caught with an unauthorized cookie jar. Amos sighed deeply and said, "I suppose it's time we told you. You're all going to need some time to think about this. You need to consider another potential mode of survival."

That bought Amos everyone's undivided attention. Jason said, "A what?"

Amos ignored the question. "You know I've done extensive research on the nature of intelligence and brains. Perhaps you've heard of my Human Personality Software Framework, even if you're not familiar with the details."

The group's blank looks told Jason he wasn't the only one who hadn't heard of Amos's Framework. William said, "Of course no one is familiar with the details. I tried to look them up, but all of your papers on the subject have been classified secret by the Department of Defense. Why is that?"

"I wish I could tell you, but the reason is as secret as the material. Anyway, the Human Personality Software Framework is a construct designed to mimic the responses of a human brain. When the Space Force brought me into the Jumpship project, the goal was to use the Framework to develop truly intelligent, autonomous piloting software."

Jason raised an eyebrow. That was an interesting slip. He'd been told that it was the civilian project leaders who'd recruited Amos.

"As you also know, that hasn't worked out. It was the same problem I've had all along. I've designed customized skull electrodes, I've dissected several brains, and I've built software models based on personality analyses, but I've never been able to fill the Framework with a usable data set. It remained a brain without knowledge, an untested theory. I'd finally decided I'd have to raise one like a child and see whether it became intelligent after several years.

"Of course, the military was not willing to wait that long. I tried paring the Framework down, eliminating many complex emotional and instinctive functions irrelevant to the task of piloting. But I still had no success. My software could not even recognize a single word, let alone fly a spaceship."

Jason asked, "And what does this have to do with us?"

"There might be another way. I believe that if I could dissect a living brain quickly, taking scans of internal chemical and charge states beyond the reach of external electrodes and imaging machines, I could capture the data I need. The Framework would become a copy of the person whose brain was read, within the limitations of the software.

"I never mentioned this idea in my reports, because it appeared to be of no practical value. But it might be possible to rescue nine desperate people who have no air or food and place them in an environment that should be safe for many years, since the Starbase's nuclear power plant appears unharmed."

The silence was longer this time. Then Jason said, "You're proposing to use an experimental machine to kill us all and read our minds into software that you just called an untested theory, so we can become simulations stuck in a computer."

"Yes, that is a succinct description."

Laura said, "But we'd be more than programs, wouldn't we? Would we be ... alive?"

"I'd use the original, detailed version of the Framework, which captured as many functions of the brain as I was able to. Most higher-order aspects of life should be duplicated."

That's not really an answer, Jason thought.

"But what would it be like? To change from this"—Laura waved her hand along her body—"to ... that?"

"I believe the new copy in the computer would have a fairly complete memory of its past life, and would feel as if it had simply migrated from one realm to another. The original, carbon-based body would, unfortunately, experience death."

"Well, yeah," said Mark, "but we wouldn't really experience it, would we? We'd be anesthetized?"

“The brain must be fully active during the process. No anesthesia. Not even pain killer.”

“Oh.”

“Nothing needs to be decided now. I would never recommend such an extreme step until all other hope is lost. William and I will continue building the device and programming the process. We intend to use it on ourselves when the time comes, if we can finish it by then.”

Jason let out a short breath. He’d been working so hard to keep morale up, and now Amos had them all talking about mass suicide. Suddenly, looking out for these people seemed like more trouble than it was worth. “Well, you go right ahead,” he said angrily. “You don't even know whether any of this will work. And if all goes right, you'll still die painfully and some little robot version of yourself will be left running around the cluster's file system. Personally, I'd rather just die properly and be done with it.” He kicked a table and rocketed to a corner of the room.

When he looked back, the others were still hovering near Amos, looking thoughtful.

***

Jason calmed down after a few minutes and began feeling guilty about his outburst. William was still working on his hat of death, and the others had drifted off throughout the room. Jason glided back to Amos, who glanced up from the Node 2 monitor as Jason approached. “I'm sorry, Amos. I really do appreciate what you're trying to do for us. It's got to be the most exotic rescue attempt ever.”

“But you don't believe it'll work.”

“I don't believe it'll work even if it works. A human being is not a computer program. I think you're wasting your time—although I suppose we don't have anything better to do with our time here, do we?” He looked at Amos's screen, and was surprised to see a live image of the *Wilbur Wright* in one window and some basic equations of orbits in another. “I thought you’d be working on those program modifications you're worried about finishing.”

“I have been, but I need a break every now and then. I've been watching the *Wilbur Wright*. I'm surprised it's still nearby.”

“Remember, it was attached to this space platform, and any relative velocity imparted by its forcible detachment is pretty small compared to the orbital velocity about Earth. It's still basically in our orbit, just with some perturbation. It might take quite a while for it to wander very far.”

Amos focused his attention on Jason. “That's right, you'd have studied the motion of objects in space as part of your spacecraft pilot training. And you probably know how to use the navigation programs installed on the cluster.”

“Sure.”

“Would you show me? I've been trying to understand the behavior of the *Wilbur Wright*.”

“OK, but—why bother?”

Amos shrugged. “I can't work on the Framework constantly. I need to do something else to relax.”

“You want to learn orbital mechanics to relax? Wow, you really are a super-genius. But sure, I'll help. I don't have anything better to do with my time either.”

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The insistent *fweep-fweep* noise that had been echoing in Jason's dream continued after he opened his eyes. The lights in the space suddenly flared to regular brightness, and he shut his eyes again for a moment. When he opened them, he saw most of the others gathering around William's computer, looking as bleary as he felt. He managed to swim near a wall, then kicked off to join them.

William said, “Yes, it's the oxygen level alarm. Approximately three hours and ten minutes ago, while we were all sleeping, the level began dropping precipitously.” He stopped and yawned noisily. “At the current rate of decline, the program is predicting between four and six hours until unconsciousness. But the rate has been gradually increasing.”

“It will take some time to execute the migration process on each person,” Amos said. Jason thought that was a poor choice of verbs. “Each of you has to make your decision now. We must begin while we can.”

Jason had made his decision a week ago, when Amos first described his crazy scheme. He said, “Amos, William, I want to thank you for all of your hard work. All of you, it's been an honor to serve with you. We fought the good fight together, but we lost. It's over. It's time to just go ahead and die. Count me out.”

The following silence was long and awkward, but then Laura's quiet, breathy voice broke it. “The urge to die has been trying harder and harder to take me these past couple of weeks, but I’ve kept fighting it. I can’t stop now. I don't want to die. I don't want to live in a computer either, but I *really* don't want to die. I'll try it.” She locked her gaze on

Jason. “And I really wish you'd come too. You've been such a help to me during this hard time, and I'm sure the next time will be hard too.”

Sue said, “I'll go. What have we got to lose at this point? Jason, I appreciate everything you've done for us, from the moment you prodded us to start the repairs. Laura's right; we still need you. Why just die? Come with us.”

One by one Mark, Qing, Manish, and Nancy each expressed their willingness to try Amos's experiment and entreated Jason to join them. He just watched them, silent. Why just die? The phrase “fate worse than death” rolled around his mind.

William looked at Jason and said, “You know I've chosen to go.” Jason thought this was easier for William; he was already nearer to being a computer program than anyone else he knew. Then, to his amazement, in these circumstances, William smiled briefly. “This is as mushy and personal as I'm ever going to get. I hope you'll reconsider, Jason. I shall miss you if you don't accompany us.”

Amos regarded Jason for several seconds. Then he spoke deliberately. “We are alike in this way, Jason: we do not give up. I am surprised to see you ever give up. It will be possible for you to join us until I finally run the process on myself. I hope you will change your mind before then.”

Give up. That one hurt. Lieutenant Jason Sangretti did *not* give up.

But he wasn't giving up. He'd simply already lost—hadn't he?

How could you know you'd really lost if you hadn't exhausted every option?

Jason sighed. Either path looked like a dead end, but ... “You're all very persuasive. All right, I'll try it. Sign me up.”

Sue touched his shoulder. They all smiled at him, the warm, close, shared-family smile of prisoners who didn't want to be alone on the gallows.

This version of him was going to die anyway. What difference did it make if a little imitation of him was born at the same time?

Fate worse than death ...

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Jason tried vainly to relax as Amos tightened the straps that bound him to the table. They were the only two left now. He'd volunteered to stay until the end, to take care of the bodies. Amos couldn't see the point of worrying about what he called “these empty shells,” but Jason insisted on carefully lashing each one to a workbench and shutting off the heat so they would all freeze. Maybe someday they'd receive decent burials.

It had been even worse than he'd imagined. The electrode-festooned hat William had built simply read the first pass of data on each shaved head, working along with the imaging scanners William had cobbled together out of weld inspection equipment. The grisly part came next, when the miniature circular saw on the robotic arm gracelessly slashed the skull open and began slicing the brain while computer-controlled tentacles tipped with electrodes, chemical sensors, and more imagers scampered rapidly across the exposed surfaces. Each victim had screamed, groaned, or thrashed in their own way as the onslaught of pain stripped away their carefully maintained restraint. The victims-in-waiting had tried not to watch, but it was impossible to turn away.

Amos had worked quickly and efficiently, placing the electrodes, checking the paths of the computer-driven saw, and even adjusting Laura's chemistry readings to compensate for her missing medication. He seemed impervious to the gruesome scenes. Jason supposed the detachment he'd learned as a brain surgeon was serving him well now, but he wondered what was really going on in Amos's head.

Jason's view of Amos was clouded by the pink mist that lingered around the equipment and shimmered faintly throughout the room, only slowly being drawn off by the air circulation system. William's suction tube attached to the saw was not sufficient to keep the atmosphere clean to Space Force standards, but long-term health effects really didn't matter now.

The little saw blade hung motionless centimeters from his forehead, waiting, like a crouched tiger. Its formerly shiny surface was stained dark red.

William had volunteered to go first, but Amos had insisted he stay until near the end, in case the equipment malfunctioned. So Sue had been the first to experience the horror, while the others stared. Yet each had drifted forward bravely in turn.

When Jason had come back from placing William's body with the others, Amos had pointed at the Node 3 monitor without a word. A new window had appeared on it. Simple black letters read, "We're OK in here. Don't be afraid. William."

So *something* was going on in the computer. But was this new software-William really OK? Would he, or it, be in any position to judge whether it was?

And did real-Jason really want some software-Jason in there thinking it was OK too?

Despite software-William's assurance, Jason was afraid, far more afraid than he wanted to admit. He'd known that serving in the military carried some risks, but he'd never imagined his promising Space Force

career would end like this. He was tempted yet again to stop. Amos would release him if he just asked. But he'd promised the others he would join them, and he was not going to allow his last act to be breaking his word.

He realized Amos had finished the preparations and was waiting for some acknowledgment from him. These would be his last words. He felt they should be deep and pithy. But the best he could come up with was, "Well, good-bye to this life."

"And hello to what comes next," Amos answered.

That could be taken a couple of different ways.

The saw spun to life with a familiar shrill whine, throwing off a puff of dried red dust. Then it sprang toward his head.

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Amos held onto the table with one hand and managed to push Jason's body away with the other. He couldn't see any point in putting it with the others, and he doubted he could do so anyway in zero gravity.

This had been even harder than he'd imagined. But he'd done it, simultaneously killing his friends and, he hoped, saving them, placing them in the relative safety of the Starbase cluster computers.

But he had other plans for himself.

The network cable between his equipment and the Node 3 computer wriggled slowly in the air like an uncertain snake. Amos pulled himself along it to the computer, unplugged the cable, and held its end in one hand. A gentle push off the computer propelled him to the robot that had gathered supplies so long ago, still perched on the workbench it had grasped upon entering this room. He plugged the network cable into it.

He'd checked the robot over several times. Its batteries were about ninety percent charged and its rocket thrusters were nearly full of fuel. And he'd already loaded another copy of his empty Framework into its memory.

A window opened on Node 3's monitor and letters appeared. "Amos, the connection to your equipment appears to have terminated unexpectedly. Is everything all right out there? William." He ignored the message.

The marvelous machine that could enable humanity to explore other star systems was still out there, drifting as a derelict. That had to, *had* to, be remedied. He had discussed the details with William in bits and pieces, pretending his intense personal interest was just idle curiosity. He now knew how to connect to the *Wilbur Wright*'s data port, activate the ship's offline systems, and access the stored Jump coordinate data. From

Jason, he'd learned enough to calculate that there were roughly even odds that the maintenance robot could catch the *Wilbur Wright*. And once he wrote his own data into his Framework, he would *be* the autonomous piloting software the ship required.

He'd accomplished some amazing things in his life. But never had he dreamed that he would have the opportunity to be the first person to travel to another star.

His was a very risky plan, far too risky to involve the others in. Jason, in particular, would surely have insisted on helping if he had known about it. No, his conscience was clearer leaving them here in the Starbase Cluster.

And, he admitted to himself, he was selfish. He doubted that more than one of his Framework processes would fit in the robot's memory, and he didn't want anyone making some rational argument why it should be someone else. His friends didn't need to know what he was up to.

Neither did anyone else. He'd considered using the *Wilbur Wright*'s radio to tell someone on Earth about the plight of the survivors on the Starbase before he left. But he'd realized that once he'd powered up the ship's communications systems, NASA would doubtless transmit the computer codes to take control of the ship. They wouldn't want their multi-billion-dollar toy hijacked by some questionable piece of software that claimed to be a person. Better to just slink off, without a word to anyone, and plan to hurry back. The Jump was nearly instantaneous, so there was no reason to be gone for long.

Amos shook his head. He'd been through all this before; now he was just putting it off. He returned to the computer, set the timer he'd programmed, pulled on the electrode hat, and strapped himself to the table. He used his free right arm to finish the last strap on his left. He hoped he had the willpower to not try to escape when the pain began. He only had to last until the saw cut that severed the connection to his voluntary muscles.

Then he would go and visit the stars—or, more likely, die trying.

The saw spun to life with a familiar shrill whine, throwing off a puff of dried red dust. Then it sprang toward his head.

Chapter 3

First Lieutenant Joe Kim's fingers danced across the computer keyboard until the image of the Starbase appeared on the screen and sharpened. "Starbase"—a presumptuous name for a glorified spacecraft construction and maintenance platform, he thought, but then, as long as the *Wilbur Wright* had been there, it had been the base from which humanity was going to reach out to the stars. Now it was a particularly large piece of orbiting space junk. Someday, when this standoff with the Confederated Arabian States was over, they'd repair it and restart the Jumpship project. But obviously not yet. Two weeks had passed, and it was still impossible to go to the Starbase without being fired on, unless today's United Nations meeting had changed that.

Joe sighed as he gazed at the wreckage. The brass who'd planned the Starbase project had certainly tried hard to prevent this. They'd known that such a famous and controversial platform would attract the attention of several terrorist organizations. Despite all the technical reasons that NASA kept spouting, he was pretty sure the major reason the prototype Jumpship had been constructed in space, at a dedicated facility in such a high orbit, was to keep it away from possible attackers. It was far enough out that it would be obvious if a ship broke from the mainstream traffic visiting space platforms and repairing satellites and such to head for it. He also knew that this civilian scientific research platform had had three separate batteries of anti-spacecraft missiles on it.

But no red flags had been raised and no missiles had been armed, because the ship that had rammed the Starbase had been a legitimate United States ship arriving right on schedule. The background records of the pilot, however, had somehow vanished.

Even from the Earth-based telescope Joe was using, the extensive damage to the Starbase was obvious. The suicidal pilot had chosen his target well, striking between the docking area and the main living quarters, and had even fired his reverse thrusters at the last moment, adding flame to impact for maximum destruction. His little ship had managed to shake the massive *Wilbur Wright* entirely loose from the

Starbase and had also torn a long gash along the living quarters, where doubtless everyone had been gathered, waiting to greet the dignitaries in the arriving ship. The lower level, where the labs and machine shops were, had been punctured in numerous places by shrapnel from the collision. There was even a huge beam sticking out of the wall of the main shop space, which had surely evacuated the room in seconds.

Not so visible was the extensive damage the pilot had done to the entire Jumpship project. Besides the head of NASA and several other high-ups, Dr. Clyde Rotigan himself had been on that transfer ship. Dr. Rotigan had pretty much single-handedly developed the theory of interstellar travel and seemed to be the only one in the world who could understand it. Even the project's other resident mega-genius, Dr. Amos Choza, would look blank when Dr. Rotigan talked about the instantaneous Jump.

Well, Dr. Choza was dead too, like Dr. Rotigan, like everyone else on the Starbase and the transfer ship. Even his good friend Jason Sangretti was gone. Jason had been so excited to get the posting as Space Force liaison to the Starbase project. Joe had teased him mercilessly about it, accusing him of wanting an assignment with a civilian project because it was safer than "real" Space Force duty. He wished yet again that he could take those words back.

The Space Force damage assessment experts were almost certain that everyone had died instantly, and Joe strongly preferred to believe that. The supply storage area had been demolished, so even if anyone had somehow survived the initial collision, the lack of food had surely finished them long ago. The image of Jason slowly starving in a dark, cold space station barged into Joe's mind again. And again he swore that if they ever found out that Jason or any of the others could have been rescued, somebody, somehow, was going to pay.

The sharp smack and rattle of the door behind him slamming open against the wall snapped Joe back to the present. He turned automatically toward the noise and saw Lieutenant General Heather Lacey, commander of the Space Force, storming into the office. He turned back to the computer for a moment to hide the smirk that crossed his face, then quickly composed himself and leaped to his feet to salute properly. Three weeks now he'd had this plum assignment, an aide to General Lacey, and he still couldn't get used to her name. It sounded like some pretty, young girl he ought to be trying to pick up in a bar. But Joe was reasonably sure General Lacey had never been pretty, and he often doubted whether she'd ever been young. He supposed she was somewhere in her fifties, with a wide frame that nonetheless showed no sign of flab, and short, half-gray hair around an extraordinarily plain face with extraordinarily sharp, hard

eyes gleaming from it. Joe liked working for her. She was smart and fair, even if her face wore a half-scowl even at the best of times.

This was certainly not the best of times. Joe was relieved that that expression was not directed at him. It seemed that he could feel the heat radiating from her. Without any preliminaries, she snapped, "That damn UN is taking the Arabs' position."

Joe waited. This didn't surprise him as much as it should have.

"Well, not exactly their position," she admitted. "They think that any UN ship should be able to serve as an escort to a US ship going to the Starbase or the *Wilbur Wright*, not necessarily an Arabian one. But it's practically the same thing. And the Arabs aren't even accepting that, so now they all want to negotiate. Again."

She stalked over to the computer screen and glared at it. Joe found it incredible that it didn't simply crack in two under her gaze. "It's oh-so-legal international piracy. We invented that Jumpship, we built all of it and the Starbase, everybody squawked because it had military potential, but at least they all recognized the basic principle of ownership"—she paused to gulp a breath—"but now that it's been wrecked, and we've been denied access to our own property, somehow we need UN permission to go salvage our own spacecraft!"

"So, what are we going to do, ma'am?" Joe asked carefully.

"The president reiterated his position that no one else is setting foot on our property, especially under threat like this. We'll still fire on any ship that approaches either the Starbase or the *Wilbur Wright*. And the Arabs repeated their promise to fire on us if we do."

It was more than just a promise. Already, two US and two Arabian ships had been destroyed, three by missile fire from spacecraft and one of the Arabian ships by a blast from the US's orbiting missile defense laser platform. Both nations were still arguing over who had fired first.

Lacey inspected the computer screen more closely. "No activity around the Starbase, I presume?" she asked.

"No, ma'am," Joe answered.

"Let's have a look at the *Wilbur Wright*, then," she said. "I almost hope there *is* a ship approaching it. It'd give me an excuse to blow something out of the sky."

Joe maneuvered the controls until the *Wilbur Wright* slid into view, then magnified the image. As expected, there were no other ships near it for General Lacey to shoot at. It just drifted along in its new orbit, as silent and lifeless as the Starbase. Lacey stared at it quietly for a few moments, then turned away and headed for her own desk. Joe still gazed at the ship, thinking. How badly was it damaged? When would it be recovered, so humanity could begin exploring the stars, even if only with

computerized ships? With Dr. Rotigan gone, would they ever be able to improve the Jump process enough for a person to ride such a ship?

The Jumpship suddenly vanished from the screen. Joe gawked at the newly visible stars where it had been, then recovered his wits and zoomed the view out, searching for it. It simply wasn't there. "Um, General Lacey, ma'am!" he called. "The *Wilbur Wright* is ... uh ... gone!"

She jumped up and ran to his screen. After a glance at the empty star field, she returned to her own computer and began typing furiously. "Yes ... getting confirmation ... ship no longer visible ... and a large gamma burst from those coordinates." She turned back to Joe. "Lieutenant, that ship just Jumped!"

"But ... but how? There couldn't have been anyone aboard a Jumpship. Remote control?" Joe sat up straighter. "From the Starbase?"

Lacey shook her head, staring intently at a point on the wall. "No, there can't be anyone alive there. And if there were, they'd surely have better things to do than suddenly launch the *Wilbur Wright* after all this time."

"But who else could have done it?" Joe persisted. "Maybe it was meant as a signal to us."

"Why wait this long, if they could control the ship? And why make it Jump? The thing has a perfectly good radio, capable of both analog and digital communication. They could have had it log onto our network here and just say hello." They both sat and pondered for several seconds, then Lacey continued, "No, it had to be a malfunction. The thing was about ready to be launched. Somehow the program started up."

"Pretty strange malfunction," Joe said. "What would trigger it?" But he couldn't come up with a better explanation.

Lacey turned back to her desk. "I'd better call General Brigg at the Pentagon," she muttered. "Of course, the UN ambassador will be ticked off if I don't call him first." She shrugged. "Oh, well." She reached for her phone.

"Ma'am?" said Joe. "It seems to me that without the *Wilbur Wright*, the Starbase is suddenly a lot less important. Maybe now, with the real prize they were fighting over gone, those UN negotiators will be able to settle things so we can get to the Starbase and start finding out what happened. Not to mention giving the crew decent burials."

Lacey gazed at Joe oddly for a moment, with something in her eyes that might have been warmth, but he decided he must have imagined that. "Ah, youthful optimism," she said. "I remember having that once. No, now that the real prize is gone, the only real motivation for resolving this standoff is gone too. All those politicians will be able to keep

posturing and blustering and trying to save their little faces for as long as they want. I'm afraid we may never get back to the Starbase now."

In the Midst of It

Chapter 4

Young technician Ray3 paused from his reading and skimmed over the inputs he was monitoring. Everything was fine, of course—everything was always fine with the Starbase Cluster. Some of the senior technicians were worried about the power supply to Node 17, and the Council had advised everyone living in Node 17 to be especially conscientious about getting daily backups, but nothing bad showed up in the system monitors yet.

Maybe he could see the problem tomorrow, when he was to go out in a maintenance robot for the first time. He was looking forward to that. He'd trained in simulations of three-dimensional space, but the older technicians told him it wasn't like experiencing the real thing.

Meanwhile, it was just another boring shift on night monitoring duty. Ray3 returned to reading Emil2's review of Sue4's new novel, *Fantasies of Distant Earth*. The characterizations of Earth people were too one-dimensional, according to Laura1, whom Emil2 had interviewed. She was one of the eight original settlers, the former Carbons who had actually once lived on Earth, so she ought to know. Still, the book sounded pretty good overall, as Sue4's work usually was. Ray3 decided he'd give it a read.

A new status indicator suddenly came on among his inputs. Ray3 looked at it curiously. He'd never seen this bit go to 1, and he didn't know what it meant. He called up the manual and looked up the bit in question. "Spacecraft docked at Port 3." Huh?! He double-checked the address. Yes, that was what that bit meant. Other nearby bits indicated that the docking clamp was secure, the seal to the ship's air lock was in place, and the network connection was damaged and not operating. Also, the air lock wasn't cycling correctly—oh, of course, there was no air anywhere in the Starbase any more, so the automatic lock couldn't match the pressures.

But this was ridiculous. There'd never been a spaceship, in all the years—he did the time conversion roughly—in five years from the

Earth's point of view, so why should one show up now, during Starbase night, and on his shift? It had to be a malfunctioning instrument.

Weren't all the spacecraft docks destroyed anyway? He called up some maintenance reconnaissance reports. No, Port 3 alone had experienced only minor damage, so it might be possible for a spaceship to be there.

Now Ray3 was very nervous. This was a really big deal. If it was true, someone had to be told immediately. If not, and he raised the alarm, he'd look like the inexperienced fool he felt like. He downloaded another document and found there were no monitoring cameras close to the corridor where Port 3 entered the Starbase. Which of the functioning external cameras was closest? He activated Camera 2 and turned it as far as it would go toward Port 3.

There was no doubt. A storage tank of some kind blocked the view of Port 3 itself, but protruding beyond the edge of the tank was a narrow cylinder with three fins, like the aft sections of airplanes and spaceships he'd read about in school.

He checked the time. Sasha3 was probably asleep, but this was going to have to go straight to the head of the Council. He called her. She answered, with some annoyance, "Ray3. This had better be important." He told her. Almost before he'd finished the sentence, she appeared in the directory with him and stared at the feed from Camera 2. Then she said, "Get the rest of the Council up here. We have to talk about this immediately."

Why does everyone in the Cluster have to sleep at once? Ray3 grumbled to himself, anticipating the reactions he'd get as he called the other eleven Council members. Of course softlife had to sleep sometime. That was when the Choza Framework did unconscious maintenance, like deleting old memories that didn't have enough emotional importance and reorganizing pointers to improve access to the remaining ones, not to mention giving people time to dream. But this whole business of having an arbitrary night time was just another holdover from the original settlers' days as Carbons. They said the Starbase itself had had an arbitrary day and night, intended to mimic Earth, where there was a real time called "night" when it got dark and people couldn't see, so they slept. But Ray3 recalled from school that Earth was always light on one side and dark on the other, so even there, the people didn't really all sleep at once, did they?

Regardless, he had to wake up eleven important and irritable people now. One by one he called them, and one by one they appeared in the directory. Fortunately, all these administrative levels had dynamic memory allocation, so it didn't get crowded.

"Thank you all for coming," began Sasha3. She was clearly very nervous. Although she had, of course, no actual facial expression, the Choza Framework included other avenues for nonverbal communication, which more than made up for the gestures, expressions, and tones of voice to which Carbons were limited. "I guess we have sort of a situation. The question is, what should we do?"

"My first question is, what do they want?" exclaimed Stephen2. "They've ignored us for twenty-five years, and now they just come strolling in here like they own the place!"

"Well, only five years of their time," said Fred1. He was the Council's oldest member, only third generation, so he'd been around in the days when the Cluster society was much smaller, and the older, seemingly wiser ex-Carbons ran everything. He continued, "And, from their point of view, they *do* own the place. They probably have no idea we're here. Besides, they couldn't have called ahead; you know all the Starbase's radio gear was destroyed before the Migration. Nonetheless, I am interested in the answer to your question. After all this time, why now?"

"We might need a little help understanding what Earth humans might be up to and how to deal with them," said Ann3. "Sasha3, I suggest we bring one of the former Carbons up here. Maybe William1; he's certainly helped us several times when the Cluster had hardware problems."

Sasha3 transmitted the equivalent of a nod. "Yes, that's a good idea. Ray3!"

Ray3 turned his attention to them, pretending that he hadn't been listening to every word.

"Call up William1 and ask him to come up here."

"Yes, ma'am," said Ray3, and prepared to awaken yet another softlife.

Moments later, William1 was among them. "Well, the first required action is to contact them, of course," he said. "But with the network connection to their ship nonfunctional, I don't see how to accomplish that. We could send someone to them in a maintenance robot, but the robots can't talk, and there's no air out there anyway. Perhaps we could reach them with the robot's radio data transmitter, if they happen to be listening."

"But if we do reach them, what are we going to say?" asked Ann3. "After 'Hi, how are you, and what are you doing here?' that is?"

"Those questions form an appropriate beginning to our dialog," said William1 with a virtual smile. "I certainly would like to know why they've come. But a more pressing issue is what *we* would like to tell

them. I propose two main goals for this contact. The first is to quickly let the Carbons know that we're here and are genuine life forms. Otherwise, they're just as likely to delete the whole bunch of us as talk to us."

1001101110, the youngest and newest member of the Council, lit up with indignation. "Are you saying," she asked William1, "that any typical Carbons are likely to just massacre us all? What kind of world did you come from?!"

"If they're that barbaric," roared Stephen2, "maybe we should try to disconnect the clamp and let their ship slip back into space!"

William1's Choza Framework radiated puzzlement for a moment. Then he said, "No, no, it's not like that. Although, Stephen2, I think you'd find that making your first move a hostile one would be ill-advised. But it's not that they would bear any ill will toward us. It's just that they wouldn't believe in us. They wouldn't place any value on us." The group remained silent, their Choza Frameworks transmitting a dizzying mix of confusion and anger. William1 tried again. "Look, when I left Earth, all software, even relatively autonomous software, was still considered just software, and I doubt things have changed that fundamentally since then. The whole concept of softlife was only a science fiction idea. Software was considered no more alive than a program you'd write to invert a matrix. Normal Carbons will probably just consider us interesting pieces of software that mimic human responses. If they've come to salvage equipment from the Starbase, which is quite possible, they might just copy a couple of us onto cartridges as curios and then shut down the whole Cluster in preparation for moving it back to Earth, never imagining that they're wiping out a society of intelligent beings. So our first task is to try to convince them, as quickly as possible, that we are sentient life and should be treated as such."

The intensity of the emotions in the directory toned down, but only a little. Sasha3 said, "And what's the second goal that you suggest?"

"Ever since we settlers were stranded here," William1 began, "we've longed to return to Earth. Now, after all these years, perhaps that's not as important as it used to be, and I imagine it isn't important at all to most of you natives. But the fact is, we need the Earth. For one thing, the Cluster isn't going to last forever. I've been maintaining these computers for a long time, and I know that the situation is deteriorating. You'll see for yourself, Ray3, if you get to take your tour tomorrow," William1 added. No one else seemed to have noticed that Ray3 now stood among them, no longer even pretending not to listen. "Technicians in robots with no new parts can only take maintenance so far. We need to either bring some real repair personnel up here or migrate to newer computers on Earth.

"Beyond that, though, I believe this society needs the Earth. Many of you natives might disagree with me, especially you younger ones," he continued, briefly fixing his attention on 1001101110. "It's hard to describe the difference between our society of many hundreds and a society consisting of several billions. You've all learned about Earth in school, but nothing we can say can really explain what it's like. Cluster society is too small, too limited, almost incestuous in a way. We've grown up enough here in our little incubator; it's time to take our place within broader humanity and to experience all that human society has to offer, like the arts, philosophy, religion, science—"

"War, famine, crime," muttered Stephen2.

William1 didn't respond to that. "Our second goal, therefore, should be to use these people, whoever they are, as a conduit to establish a relationship with human society. We need to place someone on their ship as an ambassador, to go to Earth and speak with someone with influence, probably someone in the United States government."

A thoughtful silence followed this pronouncement. Then Sasha3 said, "Whom would you recommend?"

"It should be one of the former Carbons," William1 said immediately. "For one thing, we're all accustomed to dealing with ordinary humans, unlike you natives. More important, because we all used to really be flesh and blood Carbons, I think other Carbons will be more likely to accept us as real, living people. It'll be up to this ambassador, then, to advocate for the rest of the softlife, to argue the extrapolation that our children are as alive as we are."

"Well, you certainly seem to speak well on the subject," said Sasha3. "But I hate to risk sending you off on a mission like this, since you're the best expert we have on the Cluster hardware."

"Oh, it shouldn't be me," said William1. "The obvious choice is Jason1."

No one said anything, but the discomfort emanating from all the Choza Frameworks was thick. Finally, Sasha3 said, "Does it have to be Jason1?"

"It should be," answered William1. "For one thing, he's the only one in the Cluster who knows how to pilot a spaceship. Now, I'm not recommending that we just steal their ship and run—although that is an interesting notion—but it seems to me that skill might be useful on a journey like this."

"Several natives have taken classes in spacecraft and navigation," said Ann3.

"True," said William1. "And if you'll recall, Jason1 taught all of them. But we don't have proper training materials nor simulators; that

sort of thing wasn't included in the Hampton General Encyclopedia database we happened to have. Besides, there are some skills you can't acquire by going to school or downloading information. You can learn *about* flying a spacecraft, but you can't really learn to fly a spacecraft without doing it."

"Do you think Jason1 would be willing to do this?" asked Ann3. "He seems so ... well ... "

"I know Jason1 has never been very happy as a softlife," said William1. "But you're underestimating him. You didn't know him back when he was a Carbon. He was the epitome of young enthusiasm and eagerness, a perfect junior military officer. If you knew the lengths he went to after the crash not just to keep us alive but to keep our spirits up—"

"We've all learned the history of the Migration in school," 1001101110 said. "And we don't mean to belittle everything he did—back then. But that was a long time ago, and people change."

"And people are fooled by appearances," William1 retorted. "I'm confident he could do the job better than anyone, and not just because he's a pilot. I think you'd be foolish to choose anyone else. And I'd be amazed if he wasn't willing to help."

"Well, thank you for your advice," said Sasha3 suddenly. "The Council needs to decide what to do next. We'll let you know if we need anything else."

William1 looked at her for a moment, radiating annoyance, then vanished. Sasha3 spoke to Ray3. "Is there any activity from our visiting ship yet?"

"Nothing that I'm detecting," he answered. "But most of that area was pretty heavily damaged, so I haven't got a lot of working instruments near it. I'll keep looking for any unusual signals."

"Thank you. Meanwhile, I think you'd better make yourself a subdirectory to do it from. We need a little privacy now."

"Yes, ma'am," Ray3 sighed. Then he created a new directory and dropped down into it.

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"Well, I'm certainly interested in all of your inputs," Sasha3 said. "What do you think we should do?" The virtual tone she'd attached to her voice was one of authority and confidence, but the rest of her Choza Framework nonverbal communication fairly screamed indecision and near-panic. 1001101110 fought down the smirk that wanted to escape

from her. That would have been politically unwise, and besides, this was a serious situation.

Fred1 spoke first. "All of William1's suggestions and arguments made sense. I'm not very comfortable with sending Jason1 on a mission like this. But I don't know whom to send instead."

"I don't entirely trust Jason1," said Paul4. "I think he only cares about getting back to Earth. He might just work to make that happen, without worrying about what happens to the rest of us."

"That seems a little extreme," said Fred1. "I mean, we are *his* children, too."

"I'm not sure he thinks so," answered Paul4. "I'm not sure he believes that even *he* is a real person, let alone us."

"I don't like the idea of sending a former Carbon to represent Cluster society," said Stephen2. "There are only eight of them, and they're the most atypical softlife there are. This seems like a job for a native."

"Except for the few technicians who have been in robots, none of us has ever been outside the Cluster," Ann3 pointed out. "Certainly none of us has ever been off the Starbase. What do we know about dealing with Earth and humans?"

1001101110 decided she'd let the more senior members have the floor long enough. It was time to inject more common sense into this discussion. "Why does there have to be just one representative?" she asked. "Why don't we send Jason1 for all the reasons William1 had, but also send a native with him, to speak for the rest of Cluster society?"

"And, off the record, to keep an eye on him, and make sure he doesn't sell us out," mused Stephen2. "Not a bad idea."

"An interesting suggestion, 1001101110," said Sasha3. "But who else should go?"

"It should be someone with some authority," said 1001101110. "Probably someone from this Council."

That elicited complete silence. There was a general drawing back and turning inward, as if everyone was trying to be invisible. "What about you, Sasha3?" asked 1001101110. "You're the most important among us."

"Me? Well, um, thank you, and you have a point, but ... well, any of us would have enough authority to go ... and I really shouldn't leave the Cluster during a crisis like this ... you know ... "

1001101110 looked around, but no one returned her attention. "If you don’t mind giving this job to your most junior member, I suppose I could go—"

"Thank you, 1001101110," said Sasha3, relief radiating from her. "That's the kind of service-oriented attitude we need more of. Any

objections?" After the briefest of pauses, she continued, "Then that's settled. 1001101110, you are appointed as the Council's representative on the mission to Earth. Now, who is going to ask Jason1 to participate?"

"I think that should be done by the official Council representative," said Stephen2. "After all, they're going to be working together a lot."

The Choza Framework repertoire of nonverbal communications included the equivalent of a withering glare, and 1001101110 turned it full force upon Stephen2. But Sasha3 said, "That's an excellent idea. 1001101110, you're dismissed to go speak with your new partner and convince him to go on this adventure." She tried to pass a smile. "Consider it the first test of your diplomatic skills."

1001101110 did not return the smile. But she gave the minimum socially required radiation of respect, then vanished.

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1001101110 paused one level above Jason1's directory. She'd called him already, and he'd been perfectly civil, not even complaining about being awakened. Besides, he was just an old former Carbon; she shouldn't feel nervous about meeting him. But she did. She decided it was because her standing with the Council would depend on how she dealt with Jason1 now.

She put the words "knock knock" in a text file and dropped it into Jason1's directory. She still didn't understand why the social protocol for requesting admittance required two copies of a word that represented some kind of noise, but she felt she'd better adhere to the old traditions for this encounter, however silly they might be. She immediately received a file that said only "Come in." She tried again to stifle her transmission of discomfort and dropped into the directory.

Jason1's home was remarkably plain. No artwork or decoration was visible, and no music played. There was the usual directory of links to favorite entries in the Hampton General Encyclopedia database, but the directory didn't seem very large. Several compressed graphics files cluttered the main directory. 1001101110 peeked at one and realized they were *photographs*, images of people and things outside the Cluster. That was unusual.

And, of course, there was Jason1 himself. Softlife had nothing a Carbon would call a physical appearance, but nonetheless she could see his identity and his incredible age. Jason1 was the youngest of the former Carbons, far younger than William1, but that still made him many years older than any native. Somehow his age was especially prominent in his projection of himself; she usually didn't notice William1's age. Of

course, age didn't affect his physical abilities as it would have if he'd still been stuck as a Carbon, and she sensed a surprising level of energy glowing dully down in his personality. She also sensed his sarcastic amusement, as well as his unsuccessful attempt to hide it. "So, what's the great crisis for which the illustrious Council needs my help in the middle of the night?" he asked with a small smile.

"I think this one might interest you," she answered levelly, pretending not to notice the sarcasm. "A spaceship has shown up at the Starbase."

That focused his attention. "When did they arrive?" he asked. "How many people are aboard? What are they doing?"

"The ship docked about a half hour ago, perceived time," she said. "We don't know how many people are on it. No one's come out, so we can't tell. They haven't done anything yet."

"About five or six minutes absolute time," mused Jason1. "They haven't even had time to get their space suits on yet. And we have a little time to think. For once, this time compression thing that I've always hated so much is going to be useful.

"I've always wondered why Amos designed his Frameworks so real time and perceived time didn't match," Jason1 continued. "Did he want to be able to observe the aging process he'd programmed in? Did he have some other reason? Or did he just forget to take into account how fast the computers on the Starbase are when he imported his old program?"

"He probably simply realized there was no reason for softlife to be tied to the old Carbon time perception," 1001101110 said. "Even though he does seem to have been hung up on mimicking outdated physical characteristics, at least give him some credit for forward thinking."

"Hey, don't get me wrong, Amos was brilliant," Jason1 said. "But anybody could make a mistake. He was only human."

Well, that was literally true, but there was no need to be insulting. But 1001101110 just said quietly, "I suppose."

"Anyway, miss—what did you say your name was?"

"1001101110."

Jason1 gave her a blank look. "What kind of name is that for a young woman?"

"Some of us young softlife have given up the old convention of using a traditional Carbon name and a sequence number," 1001101110 explained. "We feel it makes more sense to just use our binary pointer number in the population database as a unique identifier."

"It sounds like something a compiler threw up," said Jason1. "Look, it's hard for me to get my old Carbon head around a name like that. How about if I just take the first few digits and call you Iooi for short?"

"Why would you—" But then she remembered the Carbon fascination with visual appearances, and she got it. "Oh, right, the numerals look like letters if you write them in a graphics file. How, um, clever. Very well, call me that if you must. As a young softlife, I'm flexible enough to adapt."

"Oh, and as an old human, I'm just stuck in my programming?" Jason1 said. He laughed at her, then abruptly turned serious. "But I suppose a fellow piece of software like me will never be able to explain to you what it means to be human."

Iooi just waited. Jason1's mood swings were worrying her. And this whole interview wasn't going terribly well. Her chance to impress the Council seemed to be slipping away.

Jason1 started again. "So, I suppose the Council wants some advice on what to do with these Carbons."

"William1 thinks we should convince them to take one of us to Earth," said Iooi, "as sort of an ambassador to represent the Cluster. And he thinks you're the one who should go."

"William1 always was kind of an optimist," Jason1 said. There was another long, uncomfortable silence. Then Jason1 said, "Look, I do my best thinking in the Gardens. How about if we go there?"

"Fine," said Iooi. The Gardens was a simulation constructed by the ex-Carbons back in the early days. Like most young softlife, she'd never been there and never cared to. But if visiting the Gardens would help get this grumpy old former Carbon to do what she needed, then she was all for it.

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They flitted to the Gardens directory, and a three-dimensional world materialized around them. Jason1 drew in a deep, simulated lungful of warm, simulated air, and looked around. The broad sky was the intense purple of an approaching sunrise, crossed by a few lighter wisps of cloud and lit by an orange glow from what should be the east. A gentle breeze rustled the trees and disturbed the sprays of glowing, colored water in the stone fountains, surrounding them with soft sighing and quiet spattering. The swaying flowers between the brick paths spanned the proper hues of Earthly flowers and also extended into surreal deep blues and glowing violets, and even included true golds that radiated their own light.

Yet from all these flowers, there was no scent. Jason1 wondered again how the Choza Framework could include so incredibly much detail about the human mind, yet leave out the entire sense of smell. Perhaps another oversight—Amos had, after all, had to finish up his long-running

development of the Framework rather quickly. He decided not to mention it to Iooi, since she'd seemed upset the last time he'd questioned Amos's work. Besides, she would have no idea what a sense of smell was.

He savored the sensation of the breeze on his virtual cheeks. This was his favorite place in the Cluster, although no one else came here very often any more. Here, he could choose to look like Jason Sangretti again, as he was back when he was still really alive and only thirty years old. Because of the time compression, his perceived age was now fifty-five, far older than everyone except the other former Carbons, and more than halfway to the roughly-100-year perceived-time lifespan built into the Choza Framework.

He took another deep breath and said, "So, what do you think?"

"Well, it's certainly not the seven-dimensional sculptures of Ann4, but I suppose it's nice," Iooi answered.

He turned to look at her. She appeared as a vague, gray stick figure with no face. He was instantly irritated with her for not even trying, then he realized that she might not know what a young woman was supposed to look like. But he suspected she didn't care, either.

Jason1 sat down on a wrought-iron bench and motioned for Iooi to join him. She awkwardly steered her new body into a sitting position beside him. "So, how old are you, Iooi?" he asked, deliberately using the name to annoy her again.

"About ten perceived years, or two absolute years," she answered.

"We always estimated that childhood, the first twenty years for a Carbon, took about five perceived years," he said, ticking the years off on his fingers. It was so nice to have fingers! "Another idiosyncrasy of the Choza Framework. And you're five more perceived years past that, so your equivalent age is about twenty-five."

"Nobody uses equivalent ages any—um, right, I'm about twenty-five."

"So you're used to a developed Cluster society," he continued. "Your parents and probably their parents and your friends are all natives, and most are probably pretty young. This all seems normal to you. You really don't know anything about the early days."

"Everybody learns about the early days of Cluster society in school."

Jason1 snorted. "I haven't been to your school, but I know how schools in general pretty everything up, especially history. I doubt that you have any idea what it was like. We eight Carbons got stuffed into this Cluster—I think the term you use is 'migrated'—as a last act of desperation, literally as we were beginning to die. We sat there, strange

software beings, all alone in this huge computer system, amazed to be alive and yet also trying to decide whether we really were alive."

"What do you mean?" asked Iooi. "Did you think it was all a dream of some kind?"

"No, we knew we were really here. But we weren't sure we were really *us*. Our dead bodies were out there in the real world, right outside the Cluster. You've never been part of a real body; you can't have any idea what that meant to us.

"So we had this strange mix of euphoria and emptiness. And we felt lost in this completely foreign world of the Cluster. We clung to each other, afraid of our futures. We experimented with these new 'bodies' we had. We found the sexual interchange code that Amos had programmed and tried it out, in all the male and female combinations. There were five men and three women, so we never paired off and the whole notion of marriage never came up."

"I remember reading about marriage," said Iooi. "It seems like a useless concept. If a man and a woman want to have sex, they just do; why not? Actually, some of us wonder why there should be two sexes at all. I suppose Dr. Choza originally put that in his Framework program as another feature of physical humans to imitate, but now it seems like a pointless throwback to physical Carbon characteristics."

"Don't knock having two sexes; it's worked for millions of years," Jason1 said with a grin. "And I'm not surprised marriage seems odd to you. You've always had perfect birth control and no issues like legitimacy or passing on physical possessions to children.

"Anyway, when we got tired of just having sex, we flipped our reproduction bits on and did it all again, just as another experiment. And sure enough, the women became 'pregnant' and soon spawned child processes, new Choza Frameworks with genetic mixes from both parents. But we hadn't realized just how thorough Amos had been, how deep he'd gotten into the instinctive side of the brain. The new processes were, well, *cute*, and helpless, and we couldn't just write them off as experiments and ignore them. We had to raise them, like children."

"What do you mean, *like* children?" Iooi sputtered. "Of *course* they were cute! Of *course* you had to raise them! They were *babies*, for crying out loud! What were you going to do, just leave them to stagnate and die?"

"It all seems obvious to you," said Jason1, "and to us, now. But we were really surprised at the time. We loved them, and we raised them the best we could. And when they became adults, they wanted to have their own children and raise them.

"We didn't set out to create a society. This whole Cluster civilization is the result of a spontaneous orgy among a few desperate, lonely people."

They were silent for a while. A few simulated birds flew overhead, settled in a tree, and began chirping at the rising sun. Finally, Iooi asked, "And what's the point of this depressing story?"

Jason1 took a long breath. "I'm trying, probably vainly, to make you see this situation like a real human being would. We weren't sure whether to consider even ourselves as people. We were programmed to think of new softlife as babies, yet we still didn't consider you natives people until we came face to face with you."

"And do you now?" Iooi asked sharply.

Jason1 hesitated. How much should he tell this native softlife about his own thoughts during these long years rotting away here in this computer? Except he couldn't actually rot, of course, being software. He pretty much couldn't do *anything*. How could she possibly understand, she who thought this was real life? "I don't know what you are," he admitted. "Don't take it personally; I don't know what I am either. And that's my point. No normal flesh-and-blood human is going to consider us people. We'll be lucky if we can work our way up to the status of pets. There's no way we'll be taken seriously if we just ask people for a ride to Earth and an audience with the president, no matter what William1 says. And there's no way I'm going to waste my time trying it."

"I didn't want to bring this up," Iooi began slowly, "but you know we've been working on writing a criminal code. Refusing a direct request by Council is considered vagrancy, not pulling your own weight, and is illegal."

Anger flashed through Jason1 and his simulated hands clenched into fists. "How can you," he began tightly, "a young, empty-headed Council lackey, accuse *me* of not pulling my own weight? Did somebody delete your memory along with your intelligence, or did you sleep through this school of yours?" He turned away from her. "I'm tempted to try it! I could refuse your high-handed order and take my case straight to the people through the editorial pages. You'd all be impeached for gross thick-headedness!" He stopped. This outburst wasn't helping, and it was sort of embarrassing. He slowed his simulated breathing and called up some long-dormant self-control to drive out the fury. Then he faced Iooi again. "But you've completely mistaken my meaning. William1 was right; I am the best man, or softlife, for the job. And the job needs to be done, and done well, or our whole civilization might be destroyed. I don't intend to let that happen. I'm just not going to waste time trying to save us William1's way. We don't have time to waste."

"What did you have in mind?" Iooi asked quietly.

"William1 is right; I have to get on that ship," Jason1 continued more calmly. "I can't take the chance that they might say no. Maybe you've heard the old saying 'It's easier to ask forgiveness than permission.' I can take a maintenance robot and access their ship's network port. I did lots of the outside maintenance work in the early days, so I've run those robots plenty of times. Once I'm on board and have their computer system under control, I can try talking to them. Or maybe I should just hide in their computer, wait until they connect to a network on Earth, and get off the ship then."

"I think we should at least talk to them once we're on the ship," Iooi said. "After all, we're trying to build trust. We should act like respectable life forms instead of malicious software."

"Excuse me, what's this '*we*' stuff?" Jason1 asked. "I'm a former Carbon, with a name people might recognize, and an experienced robot operator and spacecraft pilot. What do *you* bring to the party?"

A flicker of guilt flashed from Iooi's Choza Framework before she cut it off, then she said, "I've been asked to go along as a representative of Council."

"And as a reliable young native to keep an eye on the crazy old ex-Carbon?" Jason1 asked. "Never mind, don't answer that; I've always hated it when young women lied to me. Fine, tag along if you must, but keep your mouth shut, do what I say, and stay out of the way. This mission is too important to have it fouled up by Council's ego problems."

"You know," Iooi said, "even though I'm not a mighty former Carbon, I might actually be useful on this expedition, if you'll work with me instead of just trying to keep me out of the way."

Jason1 started to snap back at her, but then stopped and sighed. "Captain Popper back at the academy always said 'An effective military officer will utilize whatever assets are available.' OK, Iooi, I guess you're right. What skills do you have that we can use? You're probably more up on computer systems and software engineering than I am."

"It was a concentration of mine in school, after politics," she said.

"Great. We're both going to be moving around through networks on unfamiliar computers, possibly running into hostile firewalls and operators. I think the first thing we should do is drop by the library and download everything we can fit in our heads about computer systems engineering. I'll rely on your judgment for choosing the best material to take. Then we'd better get ourselves backed up and go see your Council about that robot."

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When Jason1 and Iooi showed up in the administrative maintenance directory, Jason1 started to ask about a robot, but he was immediately shushed by several Council members. The whole Council was there, as well as William1 and that new technician Ray3. Everyone was gathered around one of Ray3's monitors watching a data stream. Characters were appearing very slowly, about five perceived seconds apart. So far, the input said "GQ198B." As they watched, an X appeared.

Ray3 was rapidly scanning a manual. Suddenly, he said, "Yes, that's the keyboard on Node 1. Someone's apparently typing on it."

They were in Node 1. Jason1 instinctively looked around, although without three-dimensional geometry, the action didn't mean much. Still, it unnerved him to realize that perhaps two feet away in real space, a person was typing at this computer's keyboard.

A 9 appeared after the X. "Even with the time distortion, that's pretty slow typing," Ann3 commented.

"There's no air out there, so whoever it is is wearing a space suit," Jason1 said. "It's hard to type in gloves."

"So why don't they just talk to it?" asked Sam2. "With one of those, um, microphones?"

"Not without air," Jason1 said.

"Maybe the gloves are making it impossible to type," Sasha3 said. "It all looks like gibberish. Or is that a foreign language?" The softlife had never had any reason to learn anything other than English.

"No," William1 said distractedly, looking through his own documentation. "No, that sequence appears to be the first ten characters of an administrative password. Ten more, and the whole Cluster will roll over and give them full control over everything, if we don't stop them."

Jason1 grimaced internally. This was one of the hazards of changing from human to softlife. William1 doubtless used to know all the passwords by heart. But to keep the huge Choza Framework program manageable, Amos had designed it to purge unneeded memories, rather than just shove them further back into the unconscious as a human brain would do.

One thing Jason1 did recall was that all the administrative passwords had been confidential. Only those with a direct need to know had known them, to reduce the chances of accidents or deliberate attacks on the Starbase through the computer. Even he didn't know any of them. Whoever was out there had apparently been granted a clearance, and probably had the authority to do whatever he wanted with the Cluster computers.

" ... Q ... "

"Ray3, I'd think we'd better do something about this," Sasha3 said.

"Yes, ma'am," said Ray3. He disconnected the keyboard's data stream from the command processor, then, just for good measure, cleared its buffer. The string of characters vanished.

"Ray3, is the monitor associated with that keyboard still working?" asked Sasha3.

"Yes, ma'am."

"Give us a line to it. I suppose we'd better speak to them. Jason1, thank you for joining us. If you're going to be handling this first contact, would you like to start the conversation?"

"Thanks, but no," answered Jason1. "We just came up here to tell you that we're going to take a maintenance robot and sneak onto our visitors' ship. Right now, while at least one of them is off the ship, is the perfect time to do it—the ship won't leave, and the people will be busy elsewhere. If we're lucky, there may be no one aboard at all. So, you can have the honor of the first contact. And please keep them talking, and distracted, for as long as you can. Those robots aren't very fast."

"Are you certain that's the best approach, Jason1?" asked William1.

"No, but it's the best I've got. Don't make me spend time convincing everyone. You gave me this job to do, so just let me do it the best I can, OK?"

"G ... " The typist outside presumably had no idea the keyboard's input was no longer reaching the command processor.

"Very well," Sasha3 said. "Then I suppose you don't have time for long good-byes, either. Good luck to both of you. The entire Cluster is counting on you. 1001101110, you've been the best young Council member it's been my privilege to serve with."

"Well, Sasha3, it's not like I'm going away forever," said Iooi. Then she frowned. "Is it?"

"We hope not," said Jason1. "And thank you, Sasha3."

Sasha3 took the line to the monitor. "Person of Earth," she said. "On behalf of the entire softlife society of Starbase Cluster, welcome. May we inquire what has brought you to our Cluster after all these years, and how we can establish and improve relations between our peoples?"

"That ought to bewilder them for a while," muttered Jason1. "Come on, Iooi."

Chapter 5

Jason1 and Iooi stood in the interface directory in Node5 and peered out through the network connection into the robot's computer. "It looks so small," she said.

"It is," Jason1 said. "I don't think anyone's ever put two softlife into one before, but I've double-checked the memory, and we'll fit. It'll be a little tight, though."

"I've never been outside the Cluster," Iooi said. "We'll run more slowly on other computers, won't we?"

"The robot's computer is slower than the Cluster computers, sure. But we won't notice the difference. And I have no idea what the spaceship's computer will be like. It might even be faster than ours."

"If we run slower, we'll get out of synchronization with everybody else in the Cluster. When we get back, we'll have aged less than everyone else."

"That's true," answered Jason1. "And I'm afraid it's going to be worse than that. If we're going to talk to regular humans without going crazy, we're going to have to voluntarily slow down our perceived time to match theirs. So we'll age even more slowly. You'll be younger than your current peers. I hope you don't have any close boyfriends or anything where that might be awkward."

"No, nothing like that," she said, annoyed. "I just don't like the idea much in general."

"I guess it would bother you more than me," Jason1 said. "I have the opposite problem. I was only thirty when I entered the Cluster, not much older than you. Now I'm fifty-five perceived years old, and I really feel fifty-five sometimes. But when we get to Earth, I'll probably find people I used to know, and they'll only be five years older. I don't think I'm going to like being the old man." He sighed. "But I guess we'd better get going now. That spaceship won't wait while we ponder the meaning of life and time distortion." He jumped through the port into the robot.

Still Iooi hesitated. "I might never be back to the Cluster, might I?"

"That's possible, Iooi," Jason1 said gently. "Consider yourself a pioneer rather than an exile. The Earth is full of computers. The Internet is huge; you'll love it. And there are so many people. I'm looking forward to getting back to Earth." Actually, he was apprehensive about showing up as a piece of software emulating a fifty-five-year-old man rather than as a genuine thirty-five-year-old man, but he was trying to find something encouraging to say for Iooi.

That, however, wasn't it. She drew back, radiating suspicion, and said, "I'll bet you are. But you *are* still planning to get us home to the Cluster again, aren't you? Or would you rather not return to all the mere softlife here? Is your own mission done as soon as you get back to your beloved Earth?"

Jason1's initial surprise quickly flashed to indignation. "Oh, for—Iooi, I am either going to save the softlife—all of them—or get myself deleted trying. Never mind what I think about us being alive or not; we're still all the life I've got, and I'll fight for us. Besides, I've already promised to. You're going to have to trust me."

Iooi said nothing. But after a moment, she climbed into the robot.

It was indeed a tight fit. Jason1 found it like being jammed on a crowded elevator into the personal space of a young, pretty woman whom he didn't particularly like, the same uncomfortable combination of repulsion and attraction. Curse Amos's thoroughness in designing this Framework!

Iooi, for her part, had never experienced crowds, like Jason1 had in his Carbon days. She practically glowed with discomfort and tried to edge away from him, but there were few memory addresses left.

Jason1 immediately claimed a few and began putting code in them. "What are you doing?" Iooi asked. "Shouldn't we be moving or something?"

"In a minute," he answered distractedly. "I'm just putting together a quick program for the robot so it'll return to this docking station when we're done with it. We can't afford to lose one."

After he finished, he said, "Now, connect yourself to this interface in parallel with me. You might as well get the whole experience. But just watch; don't try to move anything or we'll conflict, and the robot might get really clumsy."

He connected to the robot's controls and became the robot. He could feel his grippers holding onto the grab bars at the docking station, like a monkey's feet. His rocket thrusters were ready, and his long, spindly arms were drawn in close. Most important to him, his cameras gave him eyesight. The harsh sun made sharp shadows behind every beam around them, and the metal in the direct sunlight shone dazzlingly. He turned his

eyes' sensitivity down to mitigate the brightness, and picked up more stars in the black sky as a reward. His vision was a little grainy, and the few colors in the scene weren't quite true, but the cameras still conveyed the hard grandeur of outer space. He was in a body of sorts, and he was seeing reality around him. It was the closest he could get to being alive. He hadn't been in a maintenance robot in years, and he suddenly realized how much he missed it.

"So now we just fly to the ship, or what?" asked Iooi.

"This robot can fly, but that would be risky, among all these beams. We'll just crawl to the ship with the grippers. The structure between us and there is almost all intact."

"Whatever. Can we get started, so we can get out of this thing?"

Jason1 crept away from the robot docking station, stretching each leg out and latching onto the next grab bar. All the outside surfaces of the Starbase were covered with these grips, to enable robots or spacewalking people to travel easily. He soon reached a large beam that headed toward the spacecraft docking area and carefully flipped over the corner to stand on the outermost surface. As he finished this maneuver, the Earth came into view above the Starbase's little horizon. Jason1 paused to stare at it.

"Good, we stopped," said Iooi. "Are we finally there?"

"We're nowhere near it," said Jason1, irritated. "Look up there; there's the Earth."

"Is that what that big—blue, I think it's called—spot is? I haven't been able to make any sense of all these light and dark patterns coming in this vision circuit. This is worse than your Gardens! I don't know how anyone can stand it."

"Well, I think it's even more beautiful than the Gardens. And you might as well settle back and enjoy the ride. This robot's not fast, and we have a ways to go yet."

"Three-dimensional space," muttered Iooi. "I'll never get used to having to pass through all these intermediate locations to get to a destination."

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"'Go delete yourselves xdfsuj'" read Sasha3. "What do you suppose that means?"

"I'd say they were tired of talking to us," said William1. "That last looks like the resulting pattern from two fists striking the keyboard." After a few more attempts to type passwords, the typist had responded to Sasha3's inquiries and identified the people in the room as Thomas and Peter, and asked if they could please have access to the computer now.

Sasha3 had politely refused, introduced the Council, and tried to tell them more about Cluster civilization, but they hadn't seemed very interested. They'd kept interrupting with attempts to type in more passwords and override commands.

"Hello?" said Sasha3 through the line to the monitor. "Are you still there? I'm sorry if you're angry, but you have to understand that this is our home."

There was no answer.

"Hello?" she tried again.

William1 checked the system time. "They might be returning to their ship," he said. "I wonder whether Jason1 and 1001101110 have gotten there yet."

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Jason1 had also been worrying about his arrival time as the meters crawled by under the robot's grippers, but he relaxed a little once he saw the spaceship ahead. It looked like an ordinary light cargo ship, with a considerable storage space aft of a small cabin and forward of the main thruster. The re-entry wings protruded from the fuselage immediately aft of the cargo hatch, and the mounts for connecting to standard booster vehicles were somewhat forward of them, on the top and bottom of the vessel. These booster mounts were now firmly held by the Starbase's docking clamps. Jason1 noticed a camera pod extended from the top of the cabin, and was relieved to see that the camera was turned forward rather than toward him. The whole ship gleamed with the plain white finish of standard heat-resistant coating, except for the US flag and commercial hull number on the fuselage and tailfin, and the small red letters near the nose that read The *Staff. Odd name,* Jason1 thought.

The Starbase's docking tunnel was extended and attached to an air lock in the ship's port side, which meant that anyone entering or leaving the ship would be inside the tunnel and not see this misshapen metal creature sneaking up on them. He crept up one of the beams holding the upper docking clamp, then jumped across a gap onto a vertical beam near the port side. Despite his effort at stealth, he hit the beam with a jarring clang that seemed to ring through the robot's vibration sensors, then had to scratch his gripper claws on the metal surface to catch a grab bar. "I hope if anyone's in there, they aren't listening too closely," he murmured, trying to shake off the irrational fear that the people in the ship might overhear him speaking.

He clambered down beside the docking tunnel and paused, looking at the ship. There, just where he expected it, was the symbol on the hull

that identified the ship's network port. The Starbase's connector that should have extended to it dangled limply from its housing, doubtless another casualty of the transfer ship collision so long ago.

Jason1 stretched out his own inductive network connector like a third hand and placed it on the center of the symbol. The connection was active, and he saw the new opening into the ship's computer.

"Well," he said to Iooi, "this is where we stop just exploring and start breaking and entering. Are you ready to take on a few security protocols and firewalls?"

She looked nervous, but she nodded. He activated the robot's return program, then they both jumped through the opening.

They passed through the standard firewall with little effort, then looked around apprehensively, but nothing worse came at them. "Well, that wasn't so bad," Jason1 said. Iooi was silent, still scanning their surroundings and radiating uncertainty. Unfamiliar directories stretched off in all directions. Jason1 started calling up listings of the tree structures. "This sure beats being lost in the real world," he commented. "There, you don't have an operating system ready to give you a map."

He headed to the directory for the controls, with Iooi following closely behind. He found the basics quickly. "Thrusters, attitude, electrical power, life support—so this is where all the controls on those panels actually go—aha!"

"What?!" exclaimed Iooi, brandishing one of the file-deletion tools they'd downloaded.

"Calm down," Jason1 said. "I've just found the communication system. Here's the speaker, the microphone, the display, and the camera. I should be able to talk to them now. But first, let's have a look at this ship." The camera didn't have any controls for movement, zoom, or focus. Jason1 looked through it.

He saw a simple wide-angle view of the control room from the communication console, apparently located on the main control panel. It was a relatively small cabin, with two seats facing forward to the control panel, and two foldable jump seats on the aft bulkhead. In the center of that bulkhead was another hatch, presumably leading aft to the cargo area or perhaps a storage room. At the port side of that bulkhead, Jason1's right, was the main hatch; at the starboard side, a small enclosure that was probably the head.

These things Jason1 skimmed quickly. The important things in the cabin were the two human figures struggling out of their space suits in front of him. The man nearest the camera looked large and distorted because of the wide-angle lens. He was bent over slightly to keep from hitting his head on the low overhead.

Both of them appeared to be moving impossibly slowly. Apparently, the computer on this ship was pretty fast. Jason1 called up the specifications and nodded. "We'll have to slow ourselves down if we talk to them, or we'll die of boredom between words," he said. "Meanwhile, we might as well use our extra time to look around and decide what to do next."

They explored some more, breaking through directory permissions as they went. Jason1 found all the usual sensors and status indicators. He had a look at the Starbase through the external camera, found another computer terminal behind the aft bulkhead, and peered briefly through its camera at an unoccupied workroom between the main cabin and the cargo hold. Next, he checked the status of the engines, which were pressurized and ready to go, and apparently had been the whole time the ship was here. He was searching for digital communications when Iooi appeared beside him and said, "Look at this."

He followed her over to another directory. "This one's encrypted," she said, "and so well, I can't even see into it. They didn't protect their ship controls or life support half this well."

"That's odd," Jason1 agreed.

"There's more. See this pointer here? The whole directory is booby-trapped. If I try to read it without the right access code, it'll be deleted and overwritten." She stared at the pointer. "But if I could disable the booby trap ... "

"I'm curious what's in there, too," said Jason1. "But we're uninvited guests here, and, as you pointed out earlier, we should act like civilized human beings if we want to gain these people's trust. I don't want to accidentally wreck anything. We'd better leave it alone."

"I suppose," Iooi answered wistfully, still gazing at the pointer.

"I'm sure. We just need to stay on this ship long enough to get to Earth, and then these people can have their little mysteries. It's probably just a bunch of porn that's against their company policy or something. Besides, I'd like your help for something else. I'm trying to find setup files for computer linkups. Maybe we won't even have to ride this ship to Earth. We could simply be transferred through a network connection."

Shock pulsed out from Iooi briefly. "Transferred? You mean, wireless? All the way from here to Earth?"

"Sure. Back when the Starbase's radio communications worked, we were linked up with Earth networks all the time. OK, response was kind of slow and dropped out now and then. That's why we had so much stuff stored locally, like the Hampton General Encyclopedia that you natives have used so much for school. But the link almost always worked fine."

He grinned at her. "Besides, I thought you were the one who didn't care about three-dimensional space."

"It's a little different when there's so *much* of it. And I don't like the sound of this 'dropping out' either."

"C'mon, Iooi, you know more about network error handling than I do. We'd be fine. It's the fastest way to Earth. You're just having some sort of phobia." He stopped. "So, apparently even softlife can have irrational fears."

"You just now noticed that?! You, who've been worried about whether you're even really alive?"

Jason1 glared at her for a moment, then said, "Just help me find the files."

They searched for a while, but didn't find anything that would let them log onto any other network without human help. Jason1 looked through the camera again. The two men were out of their space suits now and seated at the control console. One's finger was on a button. Jason1 saw the command to disconnect the clamps from the Starbase go by. The reverse thrusters on the wings were powering up.

That was an awfully short visit for having come all the way from Earth, Jason1 thought, *or even a normal space platform.* Well, he didn't need to figure them out. To Iooi, he said, "I guess we're going to have to talk to them, to see if they'll link up with an Earth computer and transfer us. But let's wait until they're a little farther from the Starbase and firmly committed to returning to Earth, or wherever they're going."

"What do you mean, 'wherever they're going'?" Iooi asked.

"There are plenty of other space platforms in orbit. And this is apparently a cargo and maintenance ship. It might have other stops to make. If they don't transfer us, we might have a long ride ahead of us."

They meandered around the ship's computer some more. Jason1 found a directory named "Defense" and, thinking it might include network links to the Department of Defense, looked in. He stared in surprise, then called Iooi over. "Look at these controls and status indicators," he said. "Do you know what this means?"

"Cargo hatch, arming, fire control, warhead status," she read. "No idea."

"Iooi, there's a missile launcher in the cargo hold! And not as cargo. It's got seven live missiles, ready to go."

"So? Maybe it's a military ship."

"I saw this ship from the robot as we approached. It's no military ship."

"How do you know? You've been in the Cluster for a long time; things could have changed."

"Not that much. Besides, the markings didn't identify it as military. This is a US-registered commercial ship." He paused. "Come to think of it, it's not even a government ship at all. Why would a commercial ship be coming to the Starbase in the first place, let alone after all this time?" He thought a little more, then said, "I'm glad we're going to talk to these people soon. I have a few questions for them."

End of Sample

The entire book Softlife *is available as an ebook or a paperback from several sources. More information and links are available at* ***www.jamesrhardin.com****.*

About the Author

James R. Hardin received his first rejection from a major publisher when he was 11 years old and has been writing fiction intermittently ever since. After a long break earning a living and dealing with real life, he has returned to writing with renewed passion (although he still has to work around all that earning a living and real life stuff). Softlife is his first novel, though certainly not his last.

James supports himself and his family as an engineer in the R&D department of a major turbomachinery manufacturer, where he engages in aerodynamic design, computational fluid dynamics analyses, and battle with temperamental computers. When not writing or engineering, he often plays or composes music, usually on a piano or synthesizer.

James lives in western Pennsylvania with his wife, a varying number of sons depending on who's home, and a lazy dog.

You can find out more about James and his writing, as well as download a few of his musical compositions, at his website www.jamesrhardin.com.