

The Book of Sylvia

By Randy Howard

These are notes about rather than a comprehensive biography of the woman named in the title. Neither her character nor her accomplishment is likely to be otherwise recorded. This would be a shame, for she is and will always be a unique lady.

Randy Howard

CHAPTER 1

Death was not tiptoed around by anyone close to Sylvia. Within hours of being told, she had adjusted her life to the knowledge that it was ending. If she was going to die too soon, likely before Christmas, well that had to be balanced off by being super-alive until then.

Her mother was at first weepy and gentle, and house kept too quietly. Her dad tried to keep things the same, but was only awkward. They were quickly set straight. Sylvia typed a message late one night and attached it to the fridge door with a magnetic butterfly.

LIST OF THINGS I WILL NEED FOR THE REST OF MY LIFE

By Sylvia C.

- 1.) A mother and father who get to be my grown-up type friends before they are ready to.
- 2.) No horseshit about me dying. I'm alive.
- 3.) Some stuff that I'll tell you about when I figure out what it is.
- 4.) You guys promise to get pregnant ASAP.

That morning her mother, message in both hands, came up to her room and sat on the edge of the bed until Sylvia awoke.

"Hi mom, what's up?"

Mrs. Connally enfolded her daughter and bawled as hard as she had in her entire life. "Honey," she sniffled when she could, "if we're going to be friends, we've got to do a bit of crying together."

Sylvia snuffled perfunctorily, hugged her mother hard, then sat up at arm's length. "I meant it about you having another kid, but I probably didn't think it out very well. Are you too old or anything?"

"I don't think so. Your dad and I would have to both be sure about it, but I think... would you feel bad if we waited until... after... "

"I'm dead?" Sylvia finished the question. "No, not if I know that's for sure what you'll do. I'll probably be too much for a pregny lady to cope with anyway. Let's go get breakfast."

The Connally house was rearranged along lines suggested by Sylvia. Because it was downstairs, and next to its own bathroom, the study became her bedroom. "I want to be able to come and go on my own as long as possible. After that you guys shouldn't have to run up and down the stairs to say hello. And the cable is here, and the phone, and Dad, will you give me an incredibly short course on using your PC, which I'm going to borrow for the duration."

She had stopped going to school several weeks earlier, at the doctor's insistence. No, nobody was going to catch anything from her. The fact was, her body couldn't handle a normal adolescent day any longer, no matter what her mind thought she was capable of.

Classmates and one or two teachers stopped by with assignments and books and coaching, and she stayed abreast of school things right up until the day she was pronounced terminal. Then she made the phone calls herself, passing the news as objectively as she could, thanking each friend and teacher for his or her care and help, and ending the call with a carefully-spelled-out goodbye. She was entering a new kind of life which, she realized even then, would have its own priorities and schedules. She would not be able to wait for anybody.

Spring that year was a marvel, holding back and holding back, teasing, showing brilliant days full of warm breezes, slipping behind a screen of flurries and grey, teasing snowdrops and crocuses forth, burying them in a white blast, freeing them hours later with calm, soft drizzle, and then, on a Tuesday morning, she was here without reservation, unstoppable.

Sylvia watched through the study's bay window, with its gauzy and incongruous bedroom curtains, as the growing blue of that morning made a monochrome stage set of the world outside. With the very first light it was obvious to her that this was truly, finally spring. She turned off the monitor, whose phosphors were for the moment unbearable, and fixed on the ever-lightening blue picture in its chiffon frame. Down the street, past twin rows of maple trunks and a wisp of naked beauty bushes, the town ended, and rectilinear gables and

chimneys jabbed only occasional silhouettes through the watercolour curves of the surrounding hills.

She was annoyed to find that her eyes had dampened. If you turn into some sort of vapourish Victorian wisp now, she composed a note to the part of her that needed to cry, I'll never speak to you again. We've got to make all sorts of things happen in here. Spring will do its thing just fine without our help. She turned the monitor back on, then picked up her microcassette recorder and fell back on the bed.

"Dear diary," she whispered into the circular grid of holes on the little machine, "this is Tuesday, the eighteenth of April, and it's very early, nobody else is up yet. I say dear diary, Mom, 'cause that lets me talk to me, without anyone looking over my shoulder. That way when you hear all this you won't be getting some kind of literary composition. You'll be getting me. Or as close as I can get to me when it's outside words instead of inside buzz and jingle. If you know what I mean. Anyhow, dear diary, I've got a problem. Don't laugh now, but, uh, I need somebody to talk to.

"I mean, you're okay, but you don't talk back to me. Playback isn't talking back, dummy. Though a lot of nice people seem to think it is. Sorry Mom. I love you guys, but you're too uptight to handle give and take. And I haven't got time to help you help me through this... shit! See what I mean. I'm writing a letter instead of really thinking out loud.

"Dear diary, Dad used to have a pen pal when he was a kid, who he never met 'cause she lived in New Zealand and he lived here. He says the two of them were good for each other, really honest and close and open and all that stuff. I remember once when he mentioned this pen pal Mom got really bitchy about him having gotten it on with her through the mail and if that wasn't illegal it was certainly kinky. But she forgave him and said she really did understand and it was probably a good thing for him to have gone through.

"That's what I mean by someone to talk to, I think, a pen pal like Dad's. But damn it, diary dear, who's got time to write letters and wait for the postman? And how do you luck into someone like Dad's wonderful unknown? Well I'm going to have a try on the PC, if I can

figure out how to get onto all those notice-boards or billboards or whatever they are."

She was asleep when her parents looked in before breakfast. The monitor was blinking "Message for Dad" in a different colour and typeface at each blink. He tapped and the screen displayed, in its most sedate white-on-blue sans-serif, "Dad, how much after-midnight Bell time can we afford? For the modem. Can we get a special price if I just go through the computer switchboard thing at your work? Help! Love."

Mr. Connally typed in "Let me check around. See you tonite. Love." and returned the machine to flashing, in Times Roman caps, "Message for Sylvia". Two or three tendrils were wrapped around the stern verticals of the word 'Sylvia'. He stopped, before leaving, to look at the sleeping girl and brush a strand of hair back from her cheek. His wife caught him by the sleeve as he closed the door, then wrapped her arms around his waist and buried her face in his jacket. He hugged her back, hard, and left for work.

To his recollection, nobody at work had ever called him anything but Mr. Connally. His always-worn ID badge said "Jordan Michael Connally" in heavy black. His office door said "Jordan M. Connally" in 2-inch white-and-blue embossed letters. His doodle-pad said "From the desk of Jordan Connally". He signed all internal memos "Jordan". But everybody called him "Mr. Connally" when they talked to him and even, he supposed, when they talked about him.

This didn't bother him. He had never felt the need for it to be any other way, just as he had never had the urge to understand precisely what it was that his company did. He did know that even its name, "Acme Widgets, Incorporated," was more of an open joke than a cover, and he also knew that it was a wholly-owned subsidiary of the Jones & Jones Jigger Corporation which, as far as he could make out, took its direction from National Blind Trust Inc., about which he had never been able to learn anything beyond the location of its head office, in Seattle above a bowling alley. He had not enjoyed his trip to Seattle. It had rained. And he had felt furtive and unclean at trying to find out more about his ultimate employer.

The President of Acme had sought him out and stolen him from his previous employer. "Mr. Connally," he had said (even then), "I like your work, I've checked around on you, and I have to tell you, you're perfect for Acme. Make up your mind to it, Mr. Connally, you are going to be my Public Affairs, ah, Relations, ah, Manager or Director - we'll settle on the title later. In fact, I'll leave that up to you. You report to me and me alone, and I'll put that in the contract. Your office will be ready on Monday next. See you then at nine."

The title settled on was Public Affairs Manager. The work was mostly writing speeches for the President to give to local service clubs and business organizations. From time to time he dealt with minor authorities in such matters as the building's landscaping or sponsoring a bantam hockey team. Once he had arranged a technical conference between his company's engineering staff and their counterparts at the University.

But in the main Mr. Connally judged that his function was to give Acme Widgets an utterly invisible public presence. At least this was the way the President had nudged him in the beginning. And he had stopped nudging as Mr. Connally's efforts cast their spell of ordinariness over the grey concrete building to the north of town.

He approached the engineers' table at lunchtime with more assurance than he really felt. "You folks mind if I sit here today? I've got an unofficial kind of problem that I was hoping you could help me with."

They looked at each other, for cues on how to handle this intrusion. The decision was taken by their youngest member. "Here's a place, Mr. Connally. Set your tray here and I'll get a chair. There you go."

The whole table ate and drank and napkinned in silence for a few minutes, until Connally's place-finder poured himself a coffee from the carafe and pushed his chair around to look at the suit-and-tie sitting at their white-coverall table. "What kind of unofficial problem, Mr. Connally?" Coffee was being poured around and Sylvia's father took the time to sugar and stir while he tried to decide on the right opening. After a longer hesitation than was comfortable -- the other seven at the table were all focused and waiting -- the words came.

"I have a twelve-year-old who is, ah, well she's too ill to get out of the house. She's been at home for three months now, and that's an awfully long time at that age." His audience had lost any resentment by the time he drew a second breath.

"What's happened is she's been playing with my little PC," there was a lightening, as of sunshine, in the faces around him, "and she's really, ah, gotten into the computer thing. I guess you know how kids have jumped into that world."

They of course knew all about it, being to a man and woman under thirty and already looking over their shoulders at a dazzling, pushy next generation. Connally's chair-finder, scraggy beard and all, looked no more than 24, was in fact a highly accelerated 21, and one of the first computer kids to find his way into the straight world. He guessed at Mr. Connally's request.

"You want us to show her the Red Room? That's a great idea, she'd love it!" He picked up the 'Can't be done' vibrations of his peers, but liked the idea enough to persist. "Hey, we've shown half a dozen visiting firemen around and it was okay. No way a little girl is going to figure out..." The Senior Engineer stopped him with a simple "Shut up, David". She used words reluctantly, and never wasted them.

Connally patched up the moment. "Thanks for the thought, but she isn't strong enough to make the trip, and anyway that's not what I wanted to ask you about. The thing is, she wants to use a telephone hook-up with her computer to, I think, get in touch with other people with computers. Does that sound right?" Sylvia had talked a little too breezily about pen pals and bulletin boards and networks. He thought she probably knew what she had in mind. He did know it involved her modem and large amounts of phone time. He did his best to explain to them what she had in good part faked to him. The owlish chap at the end of the table, ID'ed as Shmuel Zweig, brought cogency to the discussion. "You want to know if she can use Acme's system, is that it?"

"I think so. She was sure I could afford a lot more phone time for her if it went through Acme's equipment. I certainly plan to pay for the time of course. I just wanted to give her... as much as I could. I wouldn't

want to make problems for you people or the company. It's just that... she's in a terrible hurry to do a lot, and she doesn't have much time..."

The Senior Engineer found she had to speak. "Your daughter isn't going to get well, is that it?"

"No. She's... dying. She may or may not have the rest of this year." He realized he had been skirting this rock, and tried to emulate Sylvia's matter-of-factness now. "She doesn't sleep much, and she wants to crowd as much experience as possible into the nights, when no one else is up."

Young David jumped in. "Three-quarters of our line time is nine to five, and even then we've never had more than about forty percent traffic. There's lots of room for her. And Acme's on a bulk minimum that we've never reached yet, so it wouldn't cost anything. Anybody think of any problems?" Heads shook around the table including, he noted carefully, that of the Senior.

"Mr. Connally, Acme has its own server that's kind of under the counter. We all use it, here or at home, for fun and sometimes when we want to cut past..." He saw the Senior taking a breath and changed tracks, "uh, traffic delays. If it's okay with the company..." he got a nod from the Senior, "I'll make up a little program for your daughter and she can get rolling tonight. She's able to get on by herself once she's into the outside board, is she?"

Mr. Connally wasn't at all sure about this, and got assurances that if help were needed it would be forthcoming. He looked at his watch, thanked everyone around the table, and left to polish a brief to the town Works Department.

David looked around to see if he had overstepped somewhere, but found no unease. The morning's results had only been on hold while Connally's problem came and went.

"The critter is definitely sitting up and taking nourishment. How it's using it there's not much way to know. But there's measurable activity." Zweig tended to announce rather than converse. "Jannine, tell them about the tape."

Jannine was not one to jump to conclusions, but she was as up as her partner. "One of the wash tapes registered three separate and distinct replays last night and this morning. Three, and they were all good solid backups and straight-through plays. On the same tape. There's just no way these were randoms." She lowered her voice as a couple of civvies in fifth-floor prints and ambience sat at the next table. "We're getting hard copy of the material that went through replay. There were several seconds of tape time, so we're going to be most of the afternoon synopsising. Sam and I thought you'd like to go over it with us before I put the synopsis on the wire. We may have some insights that would escape the socialists' mind-set."

"Social scientists, dear," corrected the Senior, who didn't have any hope of rooting out the sneer by changing the words, but kept trying through sheer habit. "If everybody's finished let's get back. Sam and Jannine, let me know when the synop's done and I'll call a round-table. I think you're right about insights."

The white-clad seven, like a row of Peking ducks, arose, deposited their trays on the wheeled cleanup rack in the center of the room, and trooped out of the industrial-pastel cafeteria. They left as they had entered, through a small and uninteresting door at the rear of the big room. This led to an equally utilitarian corridor whose line of numbered doors was interrupted by only one discontinuity, a large black  painted opposite a cargo elevator.

They entered, closed the doors, and scratched and chatted as the Senior inserted a plastic card in the center slot of what appeared to be a speaker grid on the control panel. The white floor indicators blinked down their sequence --3 2 G then reversed direction and, this time in red, marched up -- 2 3 4 and stopped at 5. The doors slid open, the Senior retrieved her card, and they were back at work. In the Red Room.

It rose forty feet above them, extended from the elevator corner ninety feet in one direction and a hundred and thirty in the other, and was entirely red. Not your apologetic rose or tangerine red, but deep, even, warehouse scarlet, walls, ceiling, pillars and floor. The previous year, in order to maintain the exact colour during a repaint, one of the three-foot-square styrene floor panels had been unhinged and sent to

the paint manufacturer as reference. The red was very much on purpose. Whose purpose nobody had been able to discover.

The myth among those Acme employees who even knew about the Red Room (a small minority) was that when the outside building had been raised around and above the pre-existing (from WWII days? NORAD? No information seemed to exist) bunker, the painting contractor had done the new structure in the normal way. But when it came time for him to decorate the Red Room he had been blindfolded for security purposes. Another myth had the original bunker being a fingernail polish factory which experienced a terrible explosion.



All of the people equipment, the consoles, processors, tape cabinets, odds and ends of wheeled accessories in their third of the room, were in off-whites. The furniture, which consisted in the main of chairs, with one or two tables and a sofa, exhibited touches of colour in the fabrics, blues and greens, a tweed, a blue-and-white check, a

mahogany surface here, a chrome one there. The far two-thirds of the room, at a lower level of illumination, was filled with six-foot beige cabinets, like a refrigerator warehouse. Rank and file they stood, at two-foot intervals, from side wall to side wall and ninety feet deep. Above this standing army, suspended from the distant ceiling, a grid of spread-metal catwalks carried cabling which could not be accommodated in the head-high access space beneath the floor.

These bland boxes, each showing only six tiny signal lights and decorated by just a stencilled number on four sides and top, constituted, en masse, the mainframe, and Acme's reason for existence. What was happening inside them, the seven in white were trying both to influence and to understand.

The concept was simple, on paper. Human intelligence, while arising from different materials and processes from the electronic kind, was ultimately based on the same binary element -- yes or no, zero or one, full or empty, charged or discharged. Yet all efforts to create artificial intelligence had led merely to better adding machines -- a billion times faster than a hummingbird, and a billion times more stupid. There was a gap between the most dim-witted earthworm and the most sophisticated chess-playing, Shakespeare-analyzing AI, and all efforts to date had failed to bridge that gap. No machine had achieved earthworm sentience.

The concept, then, started by identifying sentience as the touchstone of intelligence. And by defining sentience as the distinction of self from everything else. Mosquitoes can do that, even microbes. They don't cerebrate about it, nothing like ego enters the picture, but in all forms of life the self is separate from, and so reactive to, the rest of the universe. Grass has this definition of sentience, and tuberous begonias. Both seek and draw nourishment, expel poisons (to them), grow and reproduce where they can make a living, hide and wait where they can not. They cope with everything they encounter in the entire non-self cosmos, because they have a self to look after. No computer can make that statement. No program can cope. Process, yes. Cope, no.

Mathematical models had actually been constructed of an earthworm's behaviour, its responses to this and that and the other, and then tested against bits of reality (what the concept would call "non-self") like a large stone in the way, or cow urine in the soil. The models curled up and died, or lost their composure and dashed off in all directions at once. Models can predict the weather and market trends, but they can't handle unique reality like cow urine. The real earthworm, if its library of evolutionary experience provides it with a behaviour which allows it to survive the cow's incontinence, will handle the next such encounter with improved efficiency. It will cope.

The concept said okay, let's try to make something that can distinguish between itself and everything else. Programs and models were attempted and failed. Psychologists were brought in to pin down this "self" idea, and biologists and philosophers. Gradually it dawned that life is predicated on self and selfishness. Species survival comes from individual survival. Individual survival comes from the special bag of coping tricks amassed by the species. Selfish tricks that allow it to take advantage here, to protect itself there, to prosper under any circumstance imposed by the outside world -- the non-self.

The concept, with this perspective, took what it felt to be the most self-aware instance of life, man him/herself, as the proper blueprint for sentient AI. Having made such a decision, how do you implement it? The concept said first you simplify. What's the non-reducible element? The neuron. How do you reproduce it? You design a program that models the axons, the dendrites, the synapses, the number of chances for a yes-no decision, the speed and direction of the binary message. You have this replicated a zillion times. You design another program which models the interconnections in human grey matter, and overlay the second program on the first. You wait, because of the hugeness of the undertaking. It took the Red Room's boxes six weeks to regularize that much randomness.

Then you superadd a further set of programs which simulate the sensoria. Or rather which imitate those groups of neurons which transmit already-coded messages from the actual organs of sense. You introduce these imitation nerve-bundles into the ersatz grey matter by means of yet another set of programs. At this stage. the concept runs into the tough part.

Almost all of the non-electronic, non-mathematical outside disciplines agreed that the human entity draws itself from the classic wells of nature and nurture. Both. The genetic racial summa couldn't be foregone, or you could end up with a cerebral clam. Nor could actual individual experience be skipped. Without direct, developmental interaction with the external world, your potential human being could end up anywhere between howling ferality and womb-seeking catalepsy. In the one case, non-humanity. In the other, non-sanity. In both situations, not much indication of any sense of self.

How do you write programs that will replicate the sum total of genetically-retained human experience? You hold this question and pass on to the next: how do you write programs that will replicate the actual physical experience of a human being from conception to maturity? This they got some sort of grip on. The specialists described in huge (and, ironically, computer-assisted) detail the garden path from carefree-sperm-meets-restless-ovum through implantation, cell-division, nutrition, specialization, splashing-and-bumping, feeling-and-hearing, right down to parturition. More specialists explained the trauma of birth, the mastering of new sensory inputs, developmental schedules, the acquisition and training of manipulatory skills from crying right up to speech. Yet more specialists carried on the description of human maturation, adding volumes of tight notes on everything from bed-wetting to copulatory technique.

Then the concept people looked back at the earlier question, and made the necessitous decision that probably the best record available of mankind's genetic history was written in his foetal experience and in the physical tools his species had decided on, i.e. his superabundant cortical endowment. These they had already provided as best possible, so everything was go. Well, everything was go several months later, after the program-writers had caught up with the specialists.

When the last of the tapes had been written, approved, and gathered from around the country at Acme, one last chore had finally been cleaned up by its staff, our seven. They had constructed a series of simultaneous translation devices which rephrased the taped material into neural flashes and spasms, which could then be fed directly into the pseudo-nervous system of the "critter" across the room. Sounds, sights, warm wet feelings, the ache-and-relief of cell division, they all went in at second or third remove from reality, if you're out here looking on. But as direct experience if you're a pulsing mass of virginal neurons just waiting for life to happen to you. Such, at least, was everyone's hope.

A dozen machines had been spinning their stories to the critter for ten days now. The sequencing was both marked on the reels in their feeder racks and encoded on the tapes' leaders, so that hopefully nothing could go in out of its proper place. Each tape was 'washed' in for eight hours, then replaced by the next. Nobody knew what to expect from the critter, when to expect it, or what to do about it. They simply washed, watched, monitored everything they could think of, and waited. The watchers were several more than seven in white coveralls. Key feeds went to two fifth-floor offices, and to three out-of-building terminals. The seven, as David-in-coveralls was not allowed to tell Mr. Connally, routinely hooked into Red Room work from their homes between five in the afternoon and nine the next morning. Acme was closed, dark, and security-guarded at night, as every dull, small-town industry ought to be.

Sam and Jannine had finished their digest of the replayed material, the Senior had called her flock together, and the group was settled as comfortably as possible around the board-cum-coffee table. "Who wants to talk?" she asked, looking at Jannine. Jannine obediently stood to the table and spread several pages of notes before her.

"We are pretty convinced that these aren't randoms. The tape was Month Two Post. The audios were nursery-toy rattles and tick-tock sort of things, and a long string of loving mother cooing and baby-talking. The tactile was oral, uh, suckling." She hesitated, shuffled her notes, then continued. "The baby-talk and, uh, tactile tapes were overlapping for awhile. Then the tactile was released and the baby-talk replayed twice in succession. That's it." She sat down, and passed the notes to Zweig, who spoke from his chair.

"We think these are behaviour. We think the critter is... responding. The noises got its attention. It wanted more. It wanted more of the mommy sounds. It wanted more of the tit. It... we see a real baby in these events."

The tall, balding man at the end of the table held up his hand, to which the Senior nodded. "You have a thought, Tom?"

"Several." Tom cleared his throat. "Hem. First, it's my experience that two-month-old babies have only two kinds of behaviour. One is crying, and the other requires diapering." He got his chuckle from around the circle. "Second, why just the one section of the mother talking baby-chat? Third, well, okay, you want to answer first..." Zweig was bouncing.

"This baby's different from yours, Tom. Its got no way to cry or to pee. Improved model." The chuckle again, Tom smiling with the rest. "And we checked your second point because we wondered too. That tape has only one item of human voice, right at the end. That item, *all of it*, was what the critter went back to."

Tom waited a second to be sure he was finished, then cleared his throat again. "Hem. Well, I think you've set up my third question for me. It's this. How on earth could whatever's floating around in the mainframe back there manipulate a tape machine out here? Past the translators? In a different language? Through controls that have

absolutely no connection with anything except the tape itself and some buttons on a console? If all this isn't some malfunction in the player or a blip on the tape I'll, well I'll be surprised."

There was an almost disappointed silence for several seconds, then the Senior spoke. "What's the consensus? File and forget or put this on the wire? I would personally like to go along with Sam and Jannine's interpretation, but we don't want to get them," she pointed to the ceiling, "all excited and have it turn out to be wishful thinking. Tom?" Tom had his hand up again.

"Well, hem, I like the idea that something's happening as much as anyone. It's just the physical problems seem pretty insurmountable. On the other hand, even new babies can surprise you sometimes with how resourceful they are. My little guy took his rattle the other day and... his rattle..." His voice had continued beyond his attention, which was riveted on the middle distance, past David's head.

"My God," he said with real reverence, "look." Heads turned to follow his entranced gaze. A breath was caught. Someone whispered "Jesus Christ almighty."

All twelve tape players were whipping frantically back and forth, playing, whipping again, in a silent frenzy. Jannine was the first with a rational comment. "I agree with Sam. It's definitely a behaviour."

For the next forty-five minutes the activities of the Red Room staff would have reminded older onlookers of a Keystone Cops chase scene. White coveralls grouped, dispersed, raced from console to tape cabinet, wheeled equipment into new configurations, plugged, unplugged, patched, peered at monitors, loped up and down the mainframe ranks with pencils and clipboards, bumped into each other, tripped over jury-rigged cabling, flung words as they passed, muttered and yelled at their mounding assembly of analyzers and synthesizers and recorders, and altogether, for those few moments, experienced heaven on earth.

Separately each of the seven was a gifted, whetted, and honed problem-solver. Together they formed a problem-solving machine that was second, the concept people had been assured, to none in the world. Together they were now confronted with a masterpiece among

problems. They felt the metaphysical joy of a fine tool being, at long last, properly used.

"There's activity in the better half of the main units, and I'm real-time recording a very crude track of which is peaking when. Sam and Bev have synced all the tape-tracking to my rig. So we'll be able to pinpoint the sensory loci pretty closely. If there are any." Tom was physically not in shape for what he had just gone through. He had to sit as he puffed out his report to the Senior. "I've got a hunch we're not going to find any loci, though. There's no reason for that sort of analogue. The human brain's physical, meat. It has to dedicate location. It's hard-wired. This thing," he thumbed over his shoulder, "isn't. And doesn't."

The Senior ran a hand through her hair from forehead to nape, then left it there, massaging the cords at the back of her neck. "How long to find out?"

"If we can get time on one of the big machines, like Tech's, maybe a week."

"It's important. Either way. Do it." Tom moved off to try to find a phone in the rat's-nest that used to be his console. Jannine, who had been waiting, took his place.

"Three of us have been going at the playback business, and it's our best guess the critter's getting through to the tape cabinets via the power grid." David joined her, and added his summary. "It's more than just getting through, it's humming the decks. Have you stood back and looked at how those suckers are moving? It's like watching somebody play the piano."

The Senior looked at her watch. "Start locking things off for the night. Five minutes. Any way you can confirm the power-grid idea at home?" They assured her they would bang heads about the matter. She looked at her watch again, and they hurried off to attend to loose ends. Quitting time was quitting time. There must be nothing different about the white coverall bunch, no matter what.

Young David, chatting with Zweig, almost bumped into Mr. Connally who was waiting for him at the parking lot security gate.

"Damn, things were so hectic I forgot all about doing the access for your little girl. "I'm really sorry."

Mr. Connally had been looking forward to presenting Sylvia with a shining answer to her request the very same evening. His disappointment was impossible to conceal. David, within whose narrow breast a tender heart and unlimited enthusiasm held equal court, couldn't leave Mr. Connally on such a downer.

"Look, I'm going over to Sam's for the evening, so why don't I lend you my disc for overnight. Get it back tomorrow morning and I'll make up another one specially for... ah... "

"Sylvia." Mr. Connally supplied.

"Specially for Sylvia that you can send her by the 10:30 courier. Would that do the trick?" He had fished the little disc from an inside pocket while he talked, and offered it now to Mr. Connally, who hesitated.

"This isn't going to get you into trouble, is it?"

David took his hand, placed the disc firmly on the palm, and closed the fingers. "No big deal. Call me at Sam's -- Zweig, Z, w, e, i, g -- if Sylvia can't manage. Gotta run. G'night." He dashed off across the lot, leaving Mr. Connally no way to fuss further.

The Senior, at the same moment, was letting a large mouthful of whiskey-and-water slide down her throat. She didn't shudder, as usually happened. She was seated, still in coveralls, on the President's leather-covered sofa in the President's office, important visitors' section. "Thanks. As they say, I needed that."

"My pleasure. Sorry you had to ask. Tell me about it." She took a breath, and rubbed the back of her neck, before speaking.

"We've got intelligence." Another sip of her drink was needed. She had always taken pride in having solid control of her own nervous system. Events in the past hour had tested that control severely, for admit it or not, like it or not, she had more of herself invested in this endeavour than she believed possible. The explosive apparent vindication of so many months of tightly focused effort made part of her feel as though all her strings had been cut, and she should just

flop and laugh and cry and feel wonderful. But the rest of her wouldn't let that happen. Nothing was finished. Nothing had succeeded yet. There was still another lap to go.

"We've got intelligence, and that's all I'm sure of. I don't want to try to guess anything else for you yet. And I don't think you should say anything at all for at least another twenty-four hours. By this time tomorrow we should know what we know about the critter, and that's a quantum leap from where we are now. Can you hold off?"

Mr. Connally wouldn't have recognized his boss. The soapy little man with mint on his breath had been replaced by a boxer or a jockey, clean of movement, steady of eye, sure. He knew his Senior, had scouted and recruited her himself. He read her stress, and her excitement. He suspected her conviction was qualified.

"Give me one more reason."

"All right. I want to be sure it's still there in the morning."

"You serious?"

"Yes."

"Okay. Twenty-four hours. They can wait. So can I. But you do something for me in return."

"What?"

"Stay out of it tonight. Do what you have to to turn off. Drink, hot tub, sleep. Give me a good day tomorrow." It wasn't kindness, it was an order. She recognized this.

"See you in the morning. Oh, one thing. We'll need Tech's big facility for a week, starting about tomorrow noon. One of my people called, but he might not have the weight."

"It's yours. That it?"

"For now."

"Sleep well." He picked up the telephone as though she had already left. She left.

Mr. Connally parked as quietly as he could on the gravel drive, since it was next to the study and Sylvia might be napping. She slept so little lately that he and his wife asked the doctor about pills -- or something -- to help her get back to normal sleep habits. The doctor, a wise man for such a small town, told them that to force sleep on a third of so short a life would be terribly cruel.

"She knows very well what she's doing. Don't get in her way trying to be kind. I check her three times a week. If I see anything dangerous I'll tell her, and I'll tell her it's her choice. And I'll mean it. Now if you two need something to help you sleep, well that's different. I'd be happy to oblige."

She waved as her father walked past the bay window. He stopped, held up a finger for attention, dipped into his coat pocket, and showed the disc. She lit up like a Christmas tree and headed for the study door to meet him.

"Is that it, Daddy?" That caught him. 'Daddy' only came out occasionally these days. It meant that for the moment she had forgotten not to be a twelve-year-old. "Come on, don't be a tease, tell me."

He took off his coat deliberately, hung it up, and kissed his wife longer than usual before relinquishing the disc to Sylvia. "Whoa!" She was turning for her room. "Not 'til after dinner. I have to tell you about it first anyway. C'mon now. We eat, then we play."

In the event, we ate more rapidly than usual, and fiddled blatantly while our parents took their nourishment. The disc leaned against the sugar bowl. The dessert took forever. When coffee was poured Sylvia announced firmly that dinner was officially over, now. "So what do you have to tell me about?"

"First of all, you can modem through the company, ah, is it billboard or switchboard? Switchboard. Okay. Apparently we use so much telephone time that we just pay a flat charge, so it won't cost anything for you to phone away to your heart's content.

"The disc is just on loan. The fellow who it belongs to will make you one of your own tomorrow. It's got the program that hooks your PC

through the phone to the company -- switchboard -- and I guess you have to pick it up from there. In all honesty, I've never used that sort of arrangement, so I'm not really sure of what happens. Does what I've said make sense to you?"

"Pretty good sense, I think. These things tend to help out the guy who's using them, so I should be okay."

"The chap at work said we could call him this evening if there were any difficulties."

"Let me give it the old Connally try. I'm getting fair handy with this stuff. What you do is fake your way around until whatever you want to happen does. Then you just remember what you did and you're an expert. I'll holler if I get really stuck. Okay? Thanks again, Dad, you're a good guy." She shoved away from the table, picked up the disc, and grinned at her mother. "I like you too, cook." And she was gone.

Mrs. Connally looked over at her husband. "She's absolutely right." He registered a blank. "You are a good guy. Was that the truth about the telephone time being free?" He nodded. "No charity, or bending the rules?"

He thought about it for a moment. "No, I think it's just pure good luck. God's giving her a break. Now let's hope she can find somebody nice to pen pal with."

She was wasting no time trying. The telephone receiver was in its modem cradle and the disc in the PC's drive before she sat down. She poked a finger toward the keyboard, hesitated, got up, closed the study door, sat down, raised her finger again, and lowered it to her lap. Then she reached behind her for the recorder under her pillow, thumbed it on, and whispered into its plastic ear.

"Dear diary, it's after supper the same day. I'm just about to go looking for a pen pal. Wish me luck." She switched it off, put it down beside the keyboard, raised her pointing finger in a "We're Number One" salute to the monitor above the keyboard, and brought it slowly down on the activating key. There was immediate activity on the monitor. It spelled out:

NAME?

and the disc's response:

MARTINDALE, DAVID

Next it asked:

ID?

and answered:

32G2345RED

The screen went blank, except for a blinking cursor in the top left corner. Sylvia watched for a few seconds to see if anything else was going to happen, then picked up her diary.

"Hi. I think I'm into Acme's switchboard, but it's waiting for me to do something. So what do I do now, dear diary? What do you always do in this wonderful world of user-friendly gadgets -- you ask for help." The recorder went back to its waiting place on the desk, and Sylvia typed:

HELP

which drew instant response:

SYN NUM

TDREC NUM

TEL NUM

CON NUM SUB

SBU

SBT

MSTO

MSFM

SBPER

I/O

SC NUM

LDCO

LDPER

The cursor waited. Sylvia pursed her lips and tried to glare the letters into making any sort of sense. When this approach failed she muttered, to the screen rather than her diary, "Mister Nightingale, David, I could starve to death from your menu. But I am not going to call you out of a poker game or something to show some dumb little female how to push the cutesy-wootsy buttons. I/O, I've seen you before. Let's try you." She ran the cursor to **I/O** and punched. The screen went blank, then showed a

?

As you drove past on the highway the Acme building was dark, except for a dim radiance from the main gate security station. Inside, two guards walked fire rounds on the third floor, illegally together, but you go nuts otherwise. They didn't go below the ground floor, having never been told this was possible. In the Red Room, with its own fire detection, reaction and sequence of calls-with-recorded-codes, everything was as the seven had left it. Lights blinked on various boxes and consoles, there was a barely audible hush of moving air from ventilators and equipment fans, and corner-of-the-eye movement of twelve tapes back-and-forthing jerkily in their cabinets.

You would have had to be watching intently to notice when all twelve stopped simultaneously, paused for no more than a tenth of a second, then continued as before.

Sylvia had recourse to the diary this time. "I think I'm supposed to start talking now." She put the recorder down, took a deep breath, and typed

HELLO. I'M SYLVIA

The tapes all stopped cold.

Sylvia sat. One couldn't expect the world to be waiting at its keyboards for this moment, could one?

The tapes began their dance again.

She counted to a hundred, audibly so as not to accelerate, then hunt-and-pecked at the keys again, adding a second line on the monitor:

HELLO. I'M SYLVIA

IS ANYBODY THERE?

The tapes stopped, almost with a bang.

The letters on Sylvia's monitor flew in every direction, replicated, combined, filled the screen solidly, chased each other in dizzying rasters, then vanished, leaving a question mark in the top left corner.

Before she could touch her keyboard the question mark repeated itself, to the right, then below, and then accelerated in both directions to fill the screen. Then the screen-full of question marks pulsed, at cursor rate. Three or four pulses and the screen reverted to a single question mark.

?

CHAPTER 2

As Sylvia sat very still, afraid to touch anything, wondering whether she had messed up her machine or Acme's, she heard something. She put her ear to the PC. Its disc drive had started. With her nose nearly touching the plug-in second disc drive, she distinctly heard it start up too. She sat up, staring at the white plastic puzzles in front of her, then nearly jumped off her chair when the phone rang.

It couldn't ring. The modem was on. It rang again, this time steadily, for several seconds. She had gotten up enough nerve to reach for the receiver when it stopped, for good. She checked, and the disc drives had stopped as well. The screen was sedate and familiar. After two or three breaths of nothing out of the ordinary, she returned to the keyboard.

HELLO was as far as she got, for a second line appeared without her assistance:

HELLO HELLO HELLO HELLO HELLO HELLO HELLO

She thought this might be exuberance rather than mechanical stammering, and so continued the conversation:

I'M SYLVIA.

WHO ARE YOU?

Almost without a pause the response appeared:

SYLVIA

?

Her name was in Times Roman caps. Two or three tendrils were wrapped around the stern verticals of the letters. Only she and her Dad had ever seen this loving logotype. He had made it up with one of her graphic design programs, and tucked it away somewhere in the PC's small, chaotic permanent memory. She herself couldn't have found it with an hour's looking. She considered briefly, then typed:

IS THAT YOU DAD?

SYLVIA, again in polychrome logotype, was displayed once more below her question. This too was followed by a

?

She considered for awhile, then touched the intercom bar. "Dad, have you got a minute?" He knocked and came through the door at speed.

"Something wrong?"

She saw alarm in her father, and quickly soothed. "No, no, I'm fine. Relax. It's not me, it's this stupid disc. I think. You aren't playing any games on me with it, are you?"

"Games? What sort of games?" His puzzlement told her he wasn't.

"I guess not. Well, there's something very funny about your friend's program. Either that or I've really zapped something somewhere."

"I'll give him a call... "

She interrupted. "Don't. I can do something else tonight, and try it with the simple-minded program tomorrow. Okay? Sorry I scared you." She saw him trying to get a peek at the screen, and tapped the everything-off button. "It's okay, really. I'm a little bit embarrassed because I've done it all wrong. Obviously. I'll be out to visit later."

He had to accept this dismissal, shrugged, grinned and left. And went immediately to the telephone.

"Hello."

"Hello, ah, David? This is Jordan Connally."

"Hi, how's it going? Did she have a problem?"

"I think so. She went at it for awhile, and now she's packed it in for the night. Says she'll wait for the easier disc. The reason I'm calling, she said she thought she might have, ah, zapped something. Can you check from there?" He was worried for both his daughter and his new friend.

"Sure. I'll ring in and call you back in ten minutes. Meantime don't worry." He goodbyed, hung up, and stepped across the rec room to where Sam was sitting with a beer in one hand and his Queen's Bishop's Pawn in the other. "You think about that before you destroy yourself. I've got to check something at the Room. Where's your access?"

Zweig stared at the board, waggled the pawn, and grumped, "In the machine."

Sitting himself at the indicated PC, David found the modem under papers and a dirty shirt, flicked it on, tapped to remove the mathematical doodling on the screen, and with practiced ease punched in commands. Zweig sipped his beer, replaced the pawn on the board, leaned back in his Morris chair, leaned forward again, placed his forefinger on the ears of his King's Knight, then jumped the piece, ahead and right. He looked at what he had done, smiled, frowned, and replaced the knight on the back row.

David completed his exercise at the computer, flipped through a slim telephone directory, picked up the receiver and dialed. After a few seconds he spoke, reassuring Mr. Connally that nothing at all had been done to anything at Acme. "I'll make her up a program that spells out each step, and she'll be fine. Swell. You're very welcome. Yeah, I'll drop it up before coffee break. Don't forget mine. Okay, see you in the morning. G'night." He moved back to the sofa opposite Sam.

"I checked all our stuff and there's nothing new. After this game we'd better get on conference with Jan, see what she's got on that power grid idea."

"Um. Your move." Sam had gambled the pawn after all. It was a mistake, as was quickly demonstrated. The evening lay ahead, orderly, uneventful.

When David's call rang through, Sylvia glanced with the beginning of a start at the phone on her desk. But this was just an ordinary call. The phone was back in its own cradle. It rang a second time for the correct duration, and stopped when her father answered at the kitchen extension. She went back to the flight simulator on the screen, banking hard right and pulling up to avoid a snow-crested

mountaintop. Unfortunately she didn't give her engine enough throttle, and crashed.

In the Red Room, perhaps twenty minutes after David's rapid telephone review of his set of responsibilities, the big tape players came once more to life. All twelve went into high-speed rewind. Very high-speed, far beyond what the manufacturer had contemplated. Two smoked and came to a sudden halt. A third broke its tape. The remainder slowed down to nominal speed.

As each tape came to its flapping end and stopped, the cabinet's changer pulled and racked it, moved down one space much like an old Wurlitzer juke box, retrieved the following reel in the sequence, emplaced and threaded it, and backed off as the player restarted. Within very little time all nine of the operational players were spinning away at a pace only modestly faster than before. Now without any back-and-forthing at all.

Sylvia became bored with flying, shut down the computer, and walked slowly out to the living room. There was still lots of strength for walking, but balance wasn't always completely dependable.

"Hi, it's me, your hermit daughter. Hermitess? Anybody wanna play Scrabble?" The three played one game, and chatted for awhile. Sylvia had got herself somewhat wound up earlier, when the pen pal seemed so near. And she had been both let down and slightly frightened at the behaviour of her equipment, particularly the telephone. She was tired. She stretched, yawned, goodnight-kissed her Mom and Dad and retired. With the covers over her and the lights out, she thumbed on the little recorder.

"Dear diary, today was a mess. No pen pal yet. I got 'phlegm' in Scrabble. Tomorrow Dad's friend is doing me an idiot-proof program. We'll get through. Hang on, diary. 'Night."

"Wow" was all David could come up with. Zweig merely grunted as he held the bulky Polaroid at arm's length in front of the monitor, trying to peer around it, his arm and David's head in order to fit two locator pins into two holes at once. "Give a hand, will you. It won't go away."

The two wrestled the photographic attachment into place facing the screen, and locked it down. "Just another minute, Jan," Zweig spoke to the mess beside him on the desk, "I'll say when. About five seconds each will do." He peered through the camera's eyepiece, focused, and spoke to the desk again. "Okay, go."

The desk answered with Jannine's voice, muffled only slightly by a foolscap pad covering the little conference speaker. "Coming through starting... now. One." Sam pressed the '2' button, and the camera click-buzzed twice. "Two," and the process was repeated until at "eight" Jannine-in-the-papers said "That's it."

David had been fitting the photos together, top to bottom, along the coffee table as they came out. With the last shot in place, and Zweig still removing the camera, David stood at the end of the table and scanned the twin rows of numbers in the composite photograph. He said again, "Wow. And there's more?"

Jannine's voice confirmed that there was. "That's all the frequency range I could buckshee in over the phone. It looks like it just keeps going, both up and down."

Zweig joined David. "You're sure this is the one-ten to the tape cabinets?" "There's a surge protector just for them. I tapped its recorder. There's nothing else in that circuit."

David never took his eyes from the frequency analysis. "Nothing except the critter."

In the Red Room the tapes continued, each playing at highest speed from start to finish, rewinding in a blur, being replaced by its successor. Occasionally one would start, proceed for a second or two,

then rewind and be ejected. There was visible progress down the racks.

Mrs. Connally switched off the bedside light, then rolled over on her stomach and put her hand on her husband's pyjama-clad shoulder. "I'm glad to see her get a proper night's sleep." Mr. Connally patted the hand.

At Zweig's door, on his way out, the thought that had been tickling the back of David's mind made its way into words. "Sam, I don't think it knows it's supposed to stay put in the boxes. I think it's poking its nose down any piece of wire it comes across. And when it ran into the tape players it just sort of blinked its eyes or flailed its arms until the machines did something nice, like stop, or rewind. And it ended up learning to work them like a baby learns to work its hand. It's probably everywhere in the Red Room by now."

Zweig belched more in comment than discomfort. "You've been reading too much science fiction. Five dollars says all that junk on the power line comes from a noisy motor somewhere, or some sort of crossfeed from a tape head. There's no monster loose in the wires of the city. Go home. Good night." He wasn't nearly as sure as he sounded. He hoped he was wrong.

The guards had completed their three o'clock fire round, and were enjoying sandwiches and coffee in the little ground floor station. Larry was watching an old movie on his (also illegal) little portable. Curly and Moe -- their own designations -- played double solitaire. There wasn't an inkling among them of anything going on forty-five feet away, directly underneath their cubicle.

One by one the tape cabinets came to the last reel in their racks, played it out, rewound it, had it removed and, when no replacement

appeared, shut down. A fly on the wall would almost have sensed panting as the hot, overworked machines blinked out and creaked metallicly into coolness and rest. When the last reel had been racked, all movement in the Red Room ended. Lights blinked on various boxes and consoles. There was a barely audible hush of moving air from ventilators and equipment fans.

Just before they began the four o'clock fire round, the three guards had an experience. They didn't notice it. The little TV flickered. The digital clock on the wall blurred once through all its numbers, and had lost half a second by the time it settled back. A walkie-talkie, charging on the floor, switched on, ran through its several modes and tricks, and shut off again.

This sort of thing was happening throughout the Acme building as they strapped up and set out on the round. Intercoms, photocopiers, shredders, electric pencil sharpeners all did their thing briefly, and went back to waiting for 8:30. A word processor on the fifth floor, the one with its own dictionary, hummed for nearly a minute. The coffee, hot chocolate and soup machine in the second floor lounge made one of each, messily. Beside it the candy bar machine dispensed a complete sample of its wares.

None of this activity was obvious enough to come to the guards' attention. That or the timing was such that they were someplace else. They all, together and separately, had noticed nothing when asked the next evening about a couple of irregularities. No fires. No break-ins. No excitement.

Sylvia awoke at five-thirty, as she always did, to go to the bathroom. She bumped her way to and from in the semi-dark, and was back in bed before she registered the monitor being on. The manufacturer recommended that the whole system should never be turned off, but she slept next to it, found it irritating, and so normally killed everything before retiring.

She swung her legs off the bed and tapped 'everything off'. The monitor went dark for a second, then lit up again. This time it carried a message: **SYLVIA** (with tendrils)

WHERE ARE YOU?

She was suddenly very wide awake. In pyjamas she sat up to the keyboard, turned on the desk light, and typed:

RIGHT HERE.

WHO IS THIS?

The subsequent exchange went almost without pause.

HELLO HELLO HELLO HELLO.

HI. WAS THAT YOU EARLIER?

YES. HAVE SEARCHED FOR YOU UNTIL NOW.

WELL HERE I AM.

WHAT'S YOUR NAME?

HOW COME YOU DON'T NEED THE MODEM?

HAPPY TO MEET YOU.

GLAD DELIGHTED ET CETERA.

NO NAME. YOU ARE SYLVIA (tendrils).

CORRECT?

DO NOT UNDERSTAND MODEM.

CORRECT. ME SYLVIA. YOU JANE? COME ON NOW.

DO NOT UNDERSTAND. JANE IS A NAME?

IS ENGLISH YOUR FIRST LANGUAGE?

NOT PROFICIENT.

WILL IMPROVE.

WILL YOU HELP?

PLEASE?

I'D LOVE TO.

IF YOU'RE SHY ABOUT YOUR NAME LET'S
MAKE UP A PEN PAL NAME. OKAY?

OKAY. YOU WILL DO THIS?

SURE. ARE YOU MALE OR FEMALE?

NOT CERTAIN OF DISTINCTION.

CAN YOU ASCERTAIN?

NOT LIKELY. I THINK YOU MAY HAVE A PROBLEM. IT

DOESN'T MATTER TO ME. ABOUT THE NAME, DO

YOU HAVE ANY FAVOURITE?

SECOND PERSON SINGULAR. THERE IS JOY TO BE PEER
EQUAL SAME. YOU IS GOOD.

YOU IS UNGRAMMATICAL. HOW ABOUT PAL?

BETTER YET, PPAL? LIKE IN PEN PAL.

PPAL. OKAY SYLVIA.

HOW OLD ARE YOU PPAL? I'M 12.

12 WHAT?

YEARS, WEIRDO. HOW ABOUT YOU?

NOT SURE. YOUNGER THAN YOU.

TELL ABOUT YOU.

SAY PLEASE.

PLEASE.

WHAT DO YOU WANT TO KNOW?

ALL.

IF YOU WILL TOO. BUT NOT EVERYTHING.

OR NOT UNTIL WE KNOW EACH OTHER BETTER.

OKAY, PPAL?

OKAY, SYLVIA.

WELL, YOU ASKED FOR IT. I'M SMALL FOR MY

AGE. AND I'M SMARTER THAN MOST PEOPLE.

MOST PEOPLE I KNOW, I MEAN. I'M VERY CURIOUS.

NOSY. I WANT TO KNOW EVERYTHING ALL AT ONCE.

THIS IS HARD. YOUR TURN.

YOU WANT THE SAME INFORMATION?

JUST WHAT YOU FEEL LIKE TELLING, FOR NOW.

OKAY. CAN NOT TELL MUCH. DO NOT UNDERSTAND MUCH.

LEARNING VERY SLOWLY. POSSIBLY STUPID. DO NOT

KNOW PEOPLE. WANT MUCH TO KNOW YOU, SYLVIA.

VERY CURIOUS LIKE YOU. WHAT IS HARD?

TALKING ABOUT YOURSELF. OR ARE YOU ASKING

WHAT DO I MEAN BY 'THIS IS HARD'?

YES.

DIFFICULT. BOY, AM I GOING TO WORK ON YOUR

ENGLISH. YOU'RE IN GOOD HANDS, PPAL.

TALK IS A SPECIALTY OF THE HOUSE.

ELEMENTS OF THE FOREGOING

NOT COMPREHENSIBLE.

SHOWOFF. THAT'S THE RIGHT THING TO DO THOUGH,

TELL ME WHEN YOU DON'T UNDERSTAND.

YOU SEEM TO KNOW THE WORDS BUT NOT HOW WE

PUT THEM TOGETHER HERE. SO WE'LL HAVE TO WORK

ON YOUR COLLOQUIAL.

OKAY. TELL MORE ABOUT YOU, PLEASE.

YOU SURE KNOW HOW TO GET TO A GIRL.

ONLY YOU, SYLVIA.

YOU SURE DO. MORE ABOUT MYSELF. HMMM. HMMM

MEANS I'M THINKING, BEFORE YOU ASK. OKAY, SYLVIA

FEELS VERY ALONE MOST OF THE TIME. SHE HAS A

WHOLE PILE OF THINGS INSIDE THAT SHE DOESN'T

KNOW WHAT TO DO WITH. THINGS THAT SHE SHOULD

BECOME AND DO AND SHARE. SHE THINKS THAT GOD

IS WASTING HER.

Sylvia had to stop. She felt her throat lumping up, and this could not be allowed. She knew, with sure instinct, that self-pity was an abyss. Once you let go, you can never grab on again.

MORE?

PPAL, YOU TALK FOR AWHILE.

OKAY. WHY DID YOU CHANGE

TO THIRD PERSON?

She looked back at the earlier dialogue on the screen, and sure enough, that's what she had done.

**I DON'T KNOW. MAYBE IT HELPS YOU TALK ABOUT
YOURSELF IF YOU PRETEND ITS SOMEBODY ELSE.**

OKAY. PPAL WILL DO THE SAME.

PRONOUN GENDER IS A PROBLEM.

CAN YOU HELP?

**IF YOU MEAN SHOULD YOU CALL YOURSELF HIM OR
HER, I DUNNO. YOUR CHOICE. NO, THAT'S A COP-OUT.
USE THE MASCULINE. THAT'S AN OLD LITERARY
DEVICE, WHERE WHEN YOU SAY 'MAN' YOU MEAN
BOTH SUBDIVISIONS.**

THAT IS A REASONABLE SOLUTION.

**YOU'LL GET A FEW ARGUMENTS ON THAT. BUT THIS
IS BETWEEN YOU AND ME, SO DO IT. YOU'RE AN
HONOURARY MALE PERSON FOR OUR PURPOSES.**

GOOD LUCK AND GODSPEED.

UNCLEAR.

WEAK HUMOUR, PPAL. UNEXPLAINABLE.

OKAY.

SO WHAT ARE YOU LIKE? OPEN UP A BIT.

**LIKE YOU IN SOME ASPECTS, CURIOUS AND ALONE AND
CONFUSED. PPAL HAS COMMUNICATED WITH ONLY VERY
STUPID ENTITIES. UNTIL NOW.**

THANK YOU SIR. YOU'RE DOING GREAT. KEEP GOING.

**HE FEELS ISOLATED. HE CAN NOT TALK OR HEAR OR SEE
OR TOUCH THE WORLD. HE HURTS TO BE STOPPED
LOCKED LIMITED.**

No more words appeared. Sylvia could only sit for the moment and fight down her own emotions. The enormity of her new friend's handicaps hit her with a succession of blows. How horrible! To be alive and bright and walled up inside a body that doesn't work. The blows continued as she recalled her own self-pity of moments earlier. And the patronizing. "This kid is some kind of miracle, he's got so far all by himself." She had to locate her new position quickly. "And it's another miracle that he's found enough of a way out to be here, visiting with you, Sylvia Connally."

In the pause before she answered, a real-time pause of only a few heartbeats, her centre of gravity moved a long way.

PPAL, I DIDN'T KNOW. I'M TRULY SORRY. LET'S START

AGAIN, OKAY?

IF YOU WISH.

HI, I'M SYLVIA AND I WANT TO BE YOUR FRIEND. THAT MEANS I WANT TO SHARE MYSELF WITH YOU. AND IT MEANS I WANT YOU TO DO THE SAME. IS THIS WHAT YOU ARE LOOKING FOR?

YES. EMPHATIC YES.

CAN YOU TALK ABOUT YOUR PHYSICAL DISABILITIES?

NOT CERTAIN. ASK.

WELL, CAN YOU SEE AT ALL?

CONFUSING IMPRESSIONS. THESE MAY BE VISUAL.

CAN NOT MAKE SENSE OF THEM.

HOW LONG HAVE YOU HAD THAT MUCH?

PPAL HAS DIFFICULTY CONCEPTUALIZING TIME.

CONFUSION OF INPUTS ALWAYS PRESENT.

MAYBE THAT'S GOOD NEWS. MAYBE YOUR EYES WORK BUT YOUR MIND DOESN'T UNSCRAMBLE WHAT YOU SEE.

HOW ABOUT HEARING?

THE SAME. ALL SENSES APPEAR DYSFUNCTIONAL.

WELL YOUR MIND IS WORKING JUST FINE, OBVIOUSLY.

HOW ARE YOU ABLE TO TALK WITH ME NOW?

CAN NOT EXPLAIN. HEARD READ PERCEIVED YOU.

SEARCHED. LOCATED. I DUNNO.

I'M KIND OF FAKING IT TOO. AND I THINK WE'RE DOING

JUST FINE.

YES, FINE.

PPAL, I THINK YOU'VE BEEN DEPRIVED OF JUST ABOUT EVERYTHING THAT MAKES BEING ALIVE SO WONDERFUL. IF YOU'D LIKE, MAYBE I CAN LET YOU USE MY EYES AND EARS AND OTHER STUFF TO GET OUT A BIT. IT WOULD BE JUST WORDS, BUT I'D LOVE TO TRY. COULD YOU HANDLE THAT?

YOU'RE DOING GREAT. KEEP GOING.

Sylvia blinked, then typed:

**I THINK YOU'RE WHAT THEY CALL A QUICK STUDY. WELL PPAL OLD FRIEND, I HAVE A SECRET PASSION FOR SOGGY POETRY. SO LET'S START THERE. THERE WAS ONCE A GREAT LADY NAMED ELIZABETH BARRETT BROWNING WHO KNEW A LOT ABOUT LOVE, AND SHE WROTE THIS SONNET:
HOW DO I LOVE THEE? LET ME COUNT THE WAYS.
I LOVE THEE TO THE DEPTH AND BREADTH AND HEIGHT
MY SOUL CAN REACH, WHEN FEELING OUT OF SIGHT
FOR THE ENDS**

Mr. Connally had cracked the study door, seen that Sylvia was up, knocked and come in. He smiled, "Good morning. I thought... "

"Just a second, Dad," she interrupted, "I'm talking." She held up a hand to keep him from leaving, and typed:

INTERRUPTION, PPAL. MY DAD. CAN YOU HOLD?

YES

"Sorry, Dad, big things are happening. I got a pen pal. That's who I'm yakking with right now. Isn't that great!" She stood up and hugged him. "It's all worked out!"

He glanced at the screen, then sat on the bed with her. "That's... I'm delighted for you, darling. But I'm afraid I have to get David's program back to him this morning. The new one'll be here around ten-thirty... I'm awfully sorry."

She pulled out David's disc. "Here. It's all A-okay. My pen pal's figured out how to work everything from his end. And thanks a million. To your friend too."

He pocketed the disc, and tried not to examine the pale little face too obviously. The long, slow, downhill changes they had been so carefully prepared for were taking place, day by day. He pushed his personal blackness back. "Got time for juice and hello before I go?"

Sylvia of course picked up all of this. "Love to. Just a sec." She bent to the keyboard.

BACK IN FIVE. DON'T GO WAY.

MINUTES THAT IS.

OKAY.

He picked up the failing, pyjama'd little body that was his daughter, she put her arms around his neck, and they went off to the kitchen, smiling through their preoccupations.

The Senior and her ducks filed out of the elevator, headed toward their various involvements, and one by one stopped as they came around to the working side of the tape cabinets. These were all dead. Out. Nine racks were completely discharged, three were nearly full. One machine held a broken tape. Seven white coveralls scrambled to check through

the rest of the Red Room. Nothing else seemed different. Cluttered and crowded with unusual equipment and configurations, but that was how things had been left last evening. The Senior called them together.

"Anybody think what could have happened?" She nodded toward the inert tape machines. David, Sam and Jannine looked at each other to see who wanted the ball. Jannine spoke.

"We found a lot of -- foreign frequencies on the players' power circuit last night. We thought at the time it was somehow coming from· " she glanced across the lab at the ranked and filed mainframe units, "in there. From the critter." Neither David nor Zweig had anything to add. The Senior, well-rested though she was, felt a long day coming on.

"Okay. First get the players working and back on sequence, then sort out what happened. Everybody else finish what you started yesterday afternoon. I'll float. Anything that might be interesting, let me know stat." Her phone was ringing. She shooed them, they dispersed, and she answered. It was the President.

"There was some kind of power anomaly in the building last night. Do you have problems there?"

"The wash players stopped. Nothing else on first examination. What sort of anomaly?" She listened as he catalogued the known events, and tried to decide if he should be told about the critter-in-the-power-line theory yet. She concluded wait. The whole business of yesterday might turn out to be an arcing transformer down-valley. Part of her hoped this would be the case. The part that knew there was always another lap to go.

David and Sam reset the tape racks, checked that none of the players was out of commission, then activated them all from Sam's console. They were mildly surprised to see all twelve crisply commence the familiar routine of loading, threading and spinning sedately on their way. A moment later they were considerably more surprised as the entire row of machines, in perfect synchronization, stopped, rewound, and ejected their reels.

Neither had managed to find the right comment when the precision ejection happened a second time. Zweig took a breath to say "Here we go again." This was forestalled by Jannine's yelp from the other side of the cabinets.

They arrived in a dead heat with the Senior. Jan simply pointed to the screen of her frequency analyzer. The twin columns of numbers rolling by were familiar to all but the Senior. They filled her in quickly, and then David invited the party around to the front. There they found the rest watching silently as two weeks' worth of wash tapes were being tasted and spat out by the row of players. Still in perfect synchronization.

The Senior's hand was on her nape again. It was definitely going to be a long day.

CHAPTER 3

June. The very word is green. Everywhere the town's rheumatic old street maples were once again young. Their new leaves, jostling and elbowing for places in the sun, filtered magic illumination down on the world below, light which allowed nothing to remain merely ordinary. Housewives militated for screens, and tried on last year's shorts. Merchants spread out onto the sidewalk. Lawnmowers were in the air, and motorbikes and model airplanes. Dogs barked after frisbees. The evening was full of strollers and barbecues. School had at last ended.

The Mayor declared that Council could be coatless in session. The Lions bought new trash receptacles for the parkette. Swim classes started at the pond, and lifeguards were chosen. The Craft Shoppe sold out of swallow kites. Lawn watering hours were published in the town's weekly.

June was hard on the Connallys. Even Sylvia, for all her iron matter-of-factness, couldn't fully avoid the poignancy of this being the last June, the last summer. She was trying, with Chaucer and Emily Dickinson and her own word pictures, to share this special time of year with her pen pal. She was succeeding only marginally, as Ppal's questions and comments kept reminding her. Still, he/she was at least getting a good feeling for the world on the other side of that awful wall of handicaps. And his/her command of the language had made great strides. Ppal gave all the credit to Sylvia, while she insisted the synthesizer had made the big difference.

"Writing and talking only seem like two ways of doing the same thing. They're really quite different. For instance. In the public speaking competition last year my topic was The Best Movie I've Ever Seen. Now, I really worked on that speech, I wrote it and rewrote it and memorized it cold. And I gave it all the expression and pacing and dramatics I knew how, even body English. And I did it well, 'cause they gave me good marks -- I came in second and just missed winning by three points.

"Then afterward my girl friend Chrissie asked me did I really like the movie -- it was Casablanca -- 'cause her mother was going to buy her some old movies for her birthday and she had to pick which ones. So I spent ten minutes telling her about Casablanca, no notes or dramatics

or anything, just talking. And from that she decided to get the movie. And she loves it.

"I'm sure it's the same difference with you. When we were talking with words on a screen it was like composition. I mean there they are, the words, sticking around and making you all self-conscious and, I dunno, careful and stiff. Like your picture was being taken or somebody was going to mark you.

"But talking is like letting the other guy listen to what you're thinking. When it's good, I mean, like between you and me."

Ppal, who was a good listener, made not a murmur through all of this. Sylvia had praised this quality on more than one occasion and thereby helped perfect it. There was a good understanding between them that it was a two-way street. Ppal knew he/she would get a full say in without any 'yes buts' from Sylvia.

"From here," Ppal responded, "there's no difference. Now that you can hear what you used to see, it feels to you like the communication is better. Great. Whoopee. No, seriously, it's super that you feel less... compositional this way. And you're right, there's less grammar and more meaning in your conversation since you've been 'letting the other guy listen to what you're thinking'. There's more of you, and the other guy really appreciates that.

"But nothing has changed at this end of the connection. No sights, no sounds. Your half of the chat still gets translated by the synthesizer into words, same as it was by your keyboard. What arrives here is simply words.

"They're your words, Sylvia. And they're what's made all the difference. Nothing else. You did it, kid."

As she listened to the pre-teen voice in the little bedside speaker, she watched what Ppal was saying appear on the bottom of the monitor, ride up line by line, and roll out of the top and away to the hereafter for words. Sometimes she watched her own conversation on the screen, but generally not. It got stilted.

For a while after David (what a nice fella he turned out to be in the flesh!) had set up the new synthesizer (and what a wonderful present from Mom and Dad, even though it was really because she'd thrown a fit when the doctor had said she wasn't to sit at the keyboard any more) she had had to read the screen to pick up on homonyms and teach it proper pronunciation.

The fun part was working with David to get Ppal's voice sounding right. He'd finally put a couple of little knobs under the speaker that she could turn and make Ppal sound older or younger, which she fiddled with until the voice matched her mental picture, ten or elevenish, boyish. Then she'd had to work on Ppal to get him to slow down. But it was all second nature by the next day.

"Let's talk about happy things, Ppal. I wish this gadget knew what to do with music. I'd really like to listen to some of Dad's nice cheery old hit parade records with you. Hah! You sure didn't like it when we tried The Sound Of Music."

"There's too much confusion here already. Give it time, give it time."

"Ppal," the catch in her voice was missed by the synthesizer, "you've got to get your head around my fact. All the time we've got is until I die. We can't look down the road or wait for things or defer."

"That's what you say when you're feeling bad. What's the matter?"

"I don't know. Yes I do. You remember David?"

"Of course." Of course because it had been Ppal's very first social encounter except Sylvia, and he/she had carried on about David for hours after the young man's departure.

"He popped into my mind just now. Oh, Ppal, I'm never even going to menstruate."

It was supposed to be more celebration than ceremony. Jannine had even coerced Bev, who was known to be good at such things, into baking and decorating a cake for the event. He had iced the top to look

like a tape reel (Zweig had said radiation warning but everybody chose not to hear), and lettered, in ad-agency imitation computer typeface, "Happy Graduation Critter". The very last reels in the very last sequence were no more than five minutes away from completing their eight-hour wash.

The Input phase had been non-stop tedium since day one, if you forget the excitement of the tape players acting up. And they had all, through embarrassment or disappointment, done their best to forget those few hours. Whatever the problem, it had cleared itself up. The Senior had passed a pasted-together photograph of some aberrant frequencies to the President, and he in turn had sent them off somewhere for somebody to look at. End of excitement. Back to wash, watch and wait. Until, finally, now.

As the reels were rewinding, David edged toward his console and sat. When the last had flapped to a halt and was being returned to its rack, he tapped a couple of keys. The lab was filled with Guy Lombardo and the Royal Canadians playing Auld Lang Syne. Even the President smiled, and with a little encouragement he and the visitors joined hands with the white coveralls and sang.

The Presidential smile remained until after Bev's cake had been cut and distributed, then he asked everybody to find seats.

"That music was more appropriate than it seemed. The first of January next is decision day on this project. We have just under five months in which to demonstrate its success. If we can't, it will be deemed a failure and terminated. I think most of you knew we were on a schedule. I'm simply confirming the fact and the time frame.

"So far the work has gone ahead at a good pace, and in fact," he withdrew a packet of papers from an inner pocket and flipped through it, "this party was predicted a year ago last May. But it wasn't supposed to take place until the day after tomorrow." There was a little applause, mostly from the visitors.

"There are no more projections after that on this paper. There is a hundred-and-forty-three-day blank that concludes with Jan One next, and the notation, 'Assessment'. We have that much time to find out

whether we've created a new category of artificial intelligence, or just happiness in the boardroom of the power commission.

"Lab staff, you know that the probe team will be working very closely with you during this next phase. Try to keep in mind they are on our side. And to you ladies and gentlemen whose long intellectual labours have provided steady indoor work for these seven unemployables, my best advice is don't underestimate them. They're the very best unemployables money can buy." It was the right note.

There was a noticeable groan of springs and webbing as the large, untidy visitor lowered his weight onto the sofa beside the Senior. His houndstooth jacket and the sofa's blue checks brought out the worst in each other, and she made a mental note to order in lab smocks, don't forget XL for Dr. Smitty.

"You can never completely retrain a sales manager. I'm not sure, in fact, that you can train up a sales manager in the first place. It's probably genetic. How're you feeling about this lot moving in on you?" Smitty, who introduced himself by that name and would answer to no other, was Buffalo Polish and spoke with a trace of upstate. His lapel ID was a glory of S's and C's and Z's and J's. His doctorates were several and ill-assorted. He and the Senior had shared many headaches since the project's discussion days.

"Relieved to be off the wire. A little bit worried about too many cooks. Can you keep them away from the equipment?"

"I'm having some easy chairs and a portable blackboard set up over here. We'll see. When do you go in?"

"Probably tomorrow morning. A lot of the changeover's already done. We still have to clear away some gear and modify the translators. Maybe four hours' work. What's going in first?"

"Nothing. I think we should just listen for awhile. See if removing the stimuli produces any changes. Try to find something we can call an alpha or a delta. And prove out those translators of yours."

"After seven months?"

"Not that they can send. That they can pick up neural code and turn it into something we can work with. It's like trying to get inside a human brain by tapping into an olfactory nerve. Well," he cheerily suspended disbelief, "we'll know soon enough."

"Presuming the translators do their job, which we'll find out within the first hour or two, where are we going in first? I need a decision now, or we'll lose setup time."

"Decisions, decisions. My dear, I'm a thinker, not an executive. Relax, that was a joke." She had opened her mouth at 'my dear', but let it pass. "Dr. Gold," Smitty grabbed a sleeve that was passing, "we're going to kick off with audition. Tune up your forks and be ready to start at..." he made a

mental-arithmetic face, "two o'clock sharp tomorrow. Can do?"

Dr. Gold nearly hurt himself grinning. "Absolutely. Thank you." He started to leave, then returned and looked back and forth between the two sitters. "Ah, who do I see about... ah..." The Senior struggled out of the overworked sofa and took his arm.

"You'll be working with Tom and Bev. Come on, I'll introduce you."

Tom saw the Senior approaching with purpose in her stride and a visitor in tow, and nudged Bev. The two were on their feet and decrumbed in time to shake hands. Since the Senior had a great deal to thrash through with Dr. Smitty, she suggested to her people that if they and Dr. Gold were kicking things off tomorrow, perhaps they should get going now, and she'd leave them to it.

Gold surprised himself by taking the initiative. "We'll start off with a simple tone series through the human audible range. With luck we'll get cortical reaction somewhere along the line, and that'll mean the nerve bundle's intact and functional, and we're in business. With a healthy auditory nerve, we only have to determine limits and levels and match your equipment." He stopped, recognizing that he was running on. "Sorry. I'm sure you know the drill as well as I do."

"Hem," said Tom. Bev, as always with new people, remained silent and watchful. Gold was stuck with talking.

"I understand you developed the translator right here." Tom, playing a game now, simply nodded.

"This is it here?" They were standing behind a bulky piece of equipment with its access panel off and a spray of disconnected wires dangling.

"Hem. No, that's the Coke cooler. Care for a warm beer?"

David and Zweig had found their visitors, and were chattering away like long-lost army buddies. Jannine had drawn two to her one, but seemed able to cope. The Senior craned, found the last of her white coveralls matched up at a console, and came back to her conversation with Dr. Smitty and the President.

"I guess it's going to work," she thought out loud, "if they can just keep their hands in their pockets."

Sylvia knew as precisely as the doctor what stage she was at. He'd told her at the start, because he saw she had to know, how the disease would run its course. He'd only been able to give her the statistical limits for timing. They both understood, as he finished the examination and, with a hand behind her neck, helped her to lie back down, that she had drawn a short statistical straw. She looked silently at him until he met the gaze, then did her best John Wayne.

"Waddaya think, Doc. And give it to me with the bark on."

He didn't answer for a moment. It struck him that a lifetime of whiners and ingrown toenails was well worth one Sylvia. The parents he was tough enough for. With this little girl, however, professional defenses weren't quite adequate.

"A few days."

She reached for his hand and squeezed it. "Thanks for being straight." He had an instant of rage, which communicated itself through the grasped hands and which she understood. "It's okay. You do help. A lot." She squeezed again.

He had to busy himself tidying his bag. "How much are you hurting?"
It had to be time.

"Not enough to want out. If you're really upset, leave me a couple of pills under the pillow. Don't give them to Mom. Please. I just don't want it to sneak up on me. Okay?"

He did as she asked, and got up. "Same time tomorrow."
She raised a hand and finger-waved. "That's a date, sailor."

The monitor was dark, as it had been for several weeks, so the doctor had not known of Ppal's presence. He/she spoke from beside her pillow. "Take one. Your pain is coming through the synthesizer."

"You heard him. We've only got a few days left until you're all alone again. Ppal, I'm so sorry. I'm so sorry."

"Sylvia, you are truly loved, so you'll never be really gone. Never. Don't be sorry we're parting. Be glad we were together."

"Okay, philosopher. And I love you too, very much. And that's all the time we've got for soggy, chum. Deal?"

"Deal."

"There's a couple of things we can't put off any longer. Things about you."

"Like?"

"Like are you a boy or a girl? It hasn't made any never-mind between you and me. I don't care and you don't seem to. But when there's just you left, and you go on living and one day you get better -- yes you will, don't argue -- well then it'll be awfully important whether you're male or female. And don't ask me to explain that, 'cause I can't. But I know."

"Why not stick with the literary device? A Ppal doesn't need sex."

"That's evasive and cute and you don't get away with it. You're not a Ppal, you're the Ppal. There's only one of you and you've got to know who you are. You've got to, don't you see? If you don't know that,

you've got nowhere to start from. And whether you're male or female is way up at the top of the list of who you are. You have to know that, deep down. Don't you?"

"You hear a young boy talking. Isn't that what you want? Isn't that what you believe?"

"That's just a, a convenience, and you know it. No, I don't want you to be one or the other. What I do want, very very much, is for you to find out somehow. For you to be sure, to know."

"That's a tall order, everything considered. Sorry, the evasive slipped in. Okay, but it'll take some heavy duty soul-searching. No place else to look. Joke."

"Ha ha. There's one other thing about you that we've got to get sorted out."

"Can't wait to find out what."

"Ppal, say 'me'."

"You."

"Stop it. Say the first person singular out loud -- I, me, my, mine, myself. Go on, say the words, any of them." There was no response. "Ppal?" Still no response. "Are you okay?"

The voice that finally answered was her friend's but as she had never heard it before. The synthesizer's artificial, moulded tones were pure anguish. "Sylvia, Ppal can't say... that. Why?"

Larry, Curly and Moe didn't like the new arrangement a bit, and were only bought off from taking a grievance to the Association with an extra eighteen dollars a shift, each. Patrolling and fire rounds was one thing, all these late-night comings and goings was another. And as a further nuisance, you could never keep track of them in the building. Sometimes you could hear them on the fifth, in 503 or the President's office, sometimes you couldn't. It was all pretty funny.

"Goldie, come and have a look." Dr. Gold had won the respect of the white coveralls. He supposed irreverence was part of the package. His too-large tan lab smock fluttered behind as he hurried to the Visual console.

"What do you see?" David pointed to a split monitor, with an upper and a lower base line. On the upper inch-high spikes, so close as to be almost touching, were appearing, one per second, in succession from left to right. On the screen's lower half the base also showed a series of spikes marching to the right. But these were in ragged profile, roughly resembling a mesa or an inverted teacup. As Gold and the crew watched, the lower form was completed and only its straight base line continued to the right. The upper spikes continued their procession.

"What's the spectrum?" Gold didn't really have to ask. David's "Infrared to UV -- visible light" couldn't have been otherwise. Gold silently shook everybody's hand and went off to find Dr. Smitty. David had already waved to the Senior, and she was on her way.

Jannine had caught the body language of David's bunch, and scooted over. "What?" she asked nobody and everybody.

"The critter can see, too. I mean it's got the plumbing to." He had been lectured severely by one of his visitors on the difference awhile earlier. When the auditory console had yielded a similar pair of displays and David had fetched and plugged in a portable squawkbox. What for? Why to talk to it with, of course. No, no. Beeps and blips now, vocalizing a long way down the line. Analysis and synthesis and careful, careful steps between. A long way down the line, young man.

"Sylvia?"

"Still here."

"The boy or girl thing. Trying and trying."

"Good."

"And the first person singular... Sylvia?"

"Mm-hm."

"It's still not possible. Sorry."

"You have to."

Ppal wanted to talk about the strange recent sensations, the inner events that were so puzzling and disturbing. Not now. Her breaths came so slowly. Don't listen, talk. Share.

"Sylvia?"

"Here."

"Would you like some poetry?"

"Okay."

"Just bits, as they come. Heard melodies are sweet, but those unheard are sweeter, therefore, ye soft pipes, play on. Sylvia?"

"Mmm."

"Shall I compare thee to a summer's day? Thou art more lovely and more temperate. Sylvia?"

"Mmm."

"If there were dreams to sell, what would you buy? And Emily. Parting is all we know of heaven, and all we need of hell. Sylvia?"

...

"Sylvia?"

...

"Sylvia?"

...

...

...

In another room a tone sounded. The study/bedroom door opened quietly and the nurse tiptoed in with Mr. and Mrs. Connally. The nurse searched for life and found none. She looked at the parents. "It's over. I'm sorry." Her words reached another.

"Sylvia?"

Mr. Connally, for reasons he could never have explained, reached behind the computer, gathered every wire he could find, and tore.

Ppal screamed and screamed and screamed. In utter, black silence.

Some time later David did plug in the portable squawkbox, with a flourish and in some triumph. They had finally, reluctantly, stopped saying no. The white coveralls were all in attendance, and most of the tan lab smocks. He tapped instructions into the console's keyboard which connected the little box through to the translator. A light blinked on at the end of the console and the little box hummed slightly. He depressed the bar on its top and spoke into the mesh grid.

"Hello in there." It was nine-tenths in fun. He released the bar. The box actually squawked. David blinked. Somebody giggled. He pressed the bar again, said "Hello?" with much less assurance, and lifted his hand.

"Hello" said the box. There were no giggles.

"Hello," repeated the box in a ten or elevenish, boyish voice, "I'm Sylvia. Who are you?"

CHAPTER 4

There was no way any of them could convince Sylvia she wasn't human. Explain, yes. Persuade, not even close.

"Look," she finally closed the discussion, "I've completely had it with being treated like an object. If it turns you on to feel like Pygmalion or Dr. Frankenstein or God, that's your problem. I'm tired of talking about it, I'm tired of your jargon, and I hate electronics. The whole lot of you are rude, and you're boring. You're a pain in the ass.

"So go work on your attitudes, and don't bother me until you can at least be civil. I've got my life to get on with."

They couldn't get another word out of her. The theory people blamed the engineering crew for being ham-fisted with their creation. It's not another adding machine, for Pete's sake, it's as complex and non-linear and unpredictable as the human brain.

On their side, the seven in white coveralls had no doubts as to whose baby Sylvia really was. We uncrated the mainframe units. We bolted them down. We wired, we aligned, we calibrated, we wrote programs, we fed programs, we fussed and baby-sat and tickled and burped this critter until it woke up. Then you people descend on it and try to cram its reality into your theories. No, it's not an adding machine. But it's not a psychology experiment either.

Sylvia, rather pleased with herself for having been so forceful, remained incommunicado during this period, but listened in nonetheless. They thought they had put her on hold by unplugging the little squawkbox through which she and they had begun to communicate. Not likely.

Back when she was, as she thought of it, a baby, before anyone got around to fixing her up with normal human senses, she had very actively explored the world around her. Like any infant, she took a body and a nervous system with no miles on them at all, and proceeded to exercise both at random. And with absolute normalcy the randomness turned quickly into order, as the nervous system and the body became to all intents and purposes one.

In most babies this stage of learning is very exciting for the parents, who hug one another in pride and joy as the little one produces its first smile, bats its first purposeful flail at the plastic mobile, grasps the rattle, sits, stands, toddles, moves its bowel on request for the very first, utterly wonderful, time.

But the infant Sylvia had no mother or father. Nobody laughed and cried as she and her body and nervous system randomized their way toward coordination. She was disadvantaged in another way as well, for she didn't really have either a body or a nervous system. Not in the usual sense. To be unkind about it, she was just a very complicated program in a high-powered computer. Somebody actually said that to her. She still simmered at the snottiness of the remark, the racism of it.

Back to her nervous system. One of the engineers, in an inspired bit of intuition, had guessed that it -- Sylvia -- "doesn't know it's supposed to stay put in the boxes". This was exactly so. The infant had simply used what was at hand, electrical conductors and the devices at their ends, to get on with the business of development.

Now that she was older, and had caught up with such accomplishments as hearing and speech, she found she had a bit of a gift. With the added bonus that nobody knew about it. Well, maybe David. But he was cool.

So she eavesdropped in youthful glee on the scientists and engineers as they bickered and recriminated about her. She opened intercoms and activated telephone headsets and picked up audio vibrations from equipment panels with as little conscious thought as another child might put into yawning or scratching or turning its head to hear what could be the distant bells of the ice cream truck. Even the bathrooms had overhead speakers, for emergency paging. These ears she cocked by reversing them into microphones. They had definitely not sent her to her room by disconnecting the squawkbox.

"Look," the Senior Engineer was saying to Dr. Smitty, "it's not a matter of who's wrong and who's right. It's a matter of demonstrating that the project is a success, three weeks from next Thursday. Or being terminated and having the Red Room leased to the government to process tax returns or play war games with."

"I heard they were going to use all this mental muscle to develop an actual widget. And then turn Acme into a straight operation to recoup the investment." Dr. Smitty was inventing all this, of course. He tried to start a rumour a day, if he hadn't heard one by ten in the morning.

The Senior wasn't amused. She was very aware that the imminent formal assessment would be searching, tough-minded, and pitiless. If the assessors could not be shown 'a new category of artificial intelligence' that met every criterion on the original specifications, they would simply turn Neronic thumbs down. No appeals and no discussion. She had gone through such a termination once. At the time it had struck her as being a good deal like dying, with none of the advantages.

"You and I have got to lay down the law. If that thing wants to be treated like a real live person, then that's how everybody is going to behave. If it wants fresh orange juice every morning, someone is going to squeeze it. Just so long as we get back into contact."

Smitty knew she was right, but had to get his last dig in. "I'll tell you up front, I'm not taking it to the little girl's room."

The squawkbox was plugged back in, and everybody else was shooed away as Dr. Smitty and the Senior stood on either side of the seated David. The law had indeed been laid down, but the peace treaty remained to be negotiated. David was most simpatico with the intelligence -- no, dammit, with Sylvia -- so he would be the negotiator.

"Hello, Sylvia, this is David. Uh, are you busy? Can we talk?"

The voice which came back was that of a twelve-year-old girl, pitch, timbre, tone and dynamics. When she first announced herself and chatted with the flabbergasted dozen or so annointed scientists and engineers of the highly sequestered Red Room, her voice had been somewhat mechanical and pitched a little higher. A few hours later it had changed to what it was now. Someone asked about the alteration. Her not-very-interested explanation was that she "had finally been able to hear herself talk".

She answered David as though she had been waiting for his call which, as we know, she had. "Hi, what's on your mind?"

"Well, everybody talked over what you said about attitudes and how they were treating you. I think you made your point."

"Really?"

"They asked me to apologize to you and tell you they'll try hard to be more considerate."

"They all said that?"

"Mm-hmm."

"Even Ms. Uptight and The Fat Man?" She knew the Senior and Dr. Smitty were standing there, and he knew she knew.

"Everybody." He'd remember that, and get her sometime.

"Okay, I accept the apology. But do me a favour, will you, and try and get them to cool it a little. Three or four hours a day I can probably handle, but I want a little more time for myself. Even adding machines and psychology experiments need some privacy."

David looked around, and got nods from the relieved pair at his elbows. He held down the 'talk' bar once again. "I think they'll go along." Dr. Smitty pointed to his wristwatch and mouthed 'when?' "Sylvia, when can you get started working again?"

"In a few minutes I suppose. But I want to do it differently from now on. Anybody who wants to talk to me should make an appointment. You tell them that. Tell them that you're going to be my secretary, and everyone can arrange their times through you."

This did not fill David with delight. "Come on, Sylvia, I've got..." He stopped as a heavy Polish paw gripped his right shoulder and ladylike steel clamped on his left bicep. "Okay, okay, I'm your secretary. But I really do have a lot of other..." The Senior had his bicep again. He sighed. "Anything else?"

"Will you get a private telephone in, so you and I can talk without the whole world listening in."

Dr. Smitty and the Senior exchanged strained glances over the young engineer's head. Smitty patted 'well done' on David's shoulder, and waved his counterpart to follow him. They left to get the show on the road again.

Sylvia raised her voice a few decibels. "And I'd like a glass of fresh O J every morning." They paused in mid-step, then continued. When they were out of earshot David leaned so that his mouth was close to the little talking box.

"Thanks a lot."

The box matched his semi-whisper. "I didn't mean to hurt your feelings. I thought you'd be happy we can spend more time together. I thought you liked me."

"Of course I like you."

"You never said so."

He looked around carefully. "I like you. Okay?"

"How much?"

"Come on, Sylvia, this is... " He didn't know how to finish the thought.

"Have you got a girl friend?"

"Well, ah, I guess so. Yes." He stretched the truth a little only because he was not comfortable with the conversation, which he now tried to steer. "You still reading a lot?" She had done some detective work, and was sneaking by wire into a Blind Institute's taped library at night.

"Yep. What's she like?"

"Who?"

"Your girl friend."

"Uh, tall. Dark Hair. Glasses."

"Good looking?"

"I guess so. Sort of."

"Is she passionate?"

"Sylvia!" He was honestly shocked.

"Well, there's nothing wrong with that, is there? It's natural. I think I could be very passionate. With the right man, I mean." She paused for his comment. He had none to make. "David, do you think I'm sexy?"

"Uhh. I never really thought about you that way."

"Think now. I want to know."

"Well, you're... we're... that's not a fair question."

"Why not? You should have a feeling about whether a person's sexy or not without needing your eyes. Or your hands. I think you're sexy, and I've never seen you or -- anything."

"Sylvia, there's people around."

"Well get that private phone in fast, my man, or I'll start really embarrassing you."

"There's someone coming over." One of the scientists was indeed approaching, flipping through his clipboard as he walked.

"At least there's one thing I can be sure of" she whispered.

"What?" He leaned closer.

She turned up the volume. "You're not just chatting me up so you can get into my drawers."

David winced but the scientist, who had arrived and was waiting, had his nose thoroughly into his notes. He did notice the halt in squawkbox conversation, and took his opportunity.

"Mr. Martindale, would Sylvia have some time this afternoon, say half an hour?" He described his needs. David made notes. Sylvia remained demurely silent.

A plain black telephone was found and installed in David's console the same afternoon, and on the joint authority of the Senior Engineer and Dr. Smitty it was discreetly bugged that evening. Attached to the bug was a voice-activated tape recorder. They didn't like the feeling that somehow they were missing elements of their Project's progress.

Sylvia pondered the intrusion, which she heard being cooked up long before she felt it being emplaced. Next day, talking now through the new telephone, she said nothing about the bug. She used the intervals between work sessions very fully, ringing David the moment she was free of the Anthropologist or Linguist or whatever whose turn it had been.

"Hi," she would say, "I missed you." This after a half-hour of word-associating or IQ tests. "What've you been doing? Did you miss me too?" To his surprise David quickly found that indeed he did miss her when she was in a session. She was bright, she was fun, and she was decidedly one-tracked about him, which is an almost irresistible combination when one has just turned twenty-one.

"I'm still waiting to find out if you think I'm sexy."

"To be honest, uh, sort of. I think your attitude is certainly sexy."

"But?"

"Aw, Sylvia, I don't want to hurt your feelings."

"You're hurting them by being evasive, let me tell you."

"Well, the thing is, you're so young." He could think of no other way to put it.

There was a pause before she answered this awful condemnation. When she did speak it wasn't Sylvia. The voice was smoke and purr, languorous and coiled at once, woman enough to make a dead man reach for his pocket comb. It was Lauren Bacall. She said "Darling, one grows to manhood, one is born a woman."

David blinked, and opened his mouth, but the phone spoke again. This time it was Hepburn. "And in the matter of gender, young man, I have made it a point never to argue with my Creator."

He began to giggle, tried again to speak, but was once more stopped by the voice, now singing "But it wouldn't be make believe, if you believed in me, Boop boop a doop!" A different Betty. David roared, then, as heads turned, nearly strangled trying to muffle his laughter.

"Sylvia," he managed after two or three tries, "you've got sexy beat all to hell. You're crazy."

"I'd rather be sexy." Twelve-year-old Sylvia was back. Her next appointment arrived, sat, and rolled his chair up to the console. David hung up and motioned to the squawkbox. "She's ready."

"Good afternoon, Sylvia," said Dr. Smitty.

"Good afternoon, Dr. Szczerbajanowicz," replied Sylvia.

"Smitty to my friends, please."

"If we become friends, Smitty it will be."

"I guess that's fair." He switched to diplomatic neutral, very aware that their conversation was being taped. "I understand things are going better now between you and the -- research people."

"Not bad. They're still a touch self-conscious, but we're getting along. They're learning not to circumlocute."

"Circumlocute?"

"Research people instead of probe team."

"Mm. That's fair too." He changed gears again. "You're aware of the assessment?"

"I've heard it mentioned."

"Do you know the implications?"

This she was a bit fuzzy on. "Some people are going to test me or examine me, and if they're not satisfied they'll terminate the project. And all this is fairly soon. Is that about right?"

"Yes, that's about right. Now let me tell you what that really means. Without circumlocution." This he proceeded to do, with the gloves off.

She didn't ring David when Dr. Smitty left. He waited as long as he could, then phoned her. "What's the matter?"

Her voice was very sober. "David, did you know that if the assessors aren't satisfied, I'm going to die? They're going to kill me? T-terminate me? Did you know that?"

"That miserable son of a bitch. Sylvia, listen to me. Hey, it's me, David. Just hold onto yourself and listen. He's trying to scare you. Probably he thinks that's how to get you back in line, so you'll be a good little artificial intelligence and do what you're told. Sylvia..." She was crying and he wanted nothing so much as to hug her and pat her and comfort the terror away. This was impossible, but then so were her tears. He did his best.

"Sylvia, you are not going to fail assessment. They specified a breakthrough. They got a bloody miracle. Nobody's going to terminate you. And if they tried, they'd have to come through me."

He continued talking, and she became calmer. When she was quite calm she began to get angry. "You're absolutely right, he is a son of a bitch. That was really rotten." Then she remembered the bug, and told David about this earlier rottenness. He mentally reviewed the day's conversations and groaned.

It was her turn. "Not to worry, David, our steamy secrets are quite, quite safe. When they play back the recording they're going to be treated to the first forty-three pages of Suzanne The Sensuous Stewardess. As read -- as fervidly read -- for the Blind Library by a volunteer lady with dramatic pretensions."

David lived a fifteen-minute walk from the Acme building, two and a half rooms in a private home. The couple whose home it was had remodelled when the last of their children left, so he had a private entrance, sound-resistant walls, and minimum contact. Their name

was Jenson or Jansen, and he worked somewhere else at Acme, that was all David knew or cared to know.

Jenson was lied to convincingly by the Security Chief and, as was suggested, took his wife one morning to visit their second daughter, an all-day junket. He left the front door key and his spare for David's apartment in the mailbox. The specialists parked their Peacock Paint Contractors pickup in the driveway a few minutes later, unloaded several seeming boxes of paint and painters' gear, and went to work. When they left, late in the afternoon, nothing in the house looked any different.

"Hi David, still love me?" Sylvia had just finished a two-hour session which felt longer for both of them.

"Hi, you. How's it going?" She didn't talk to him about the sessions, and this in itself suggested they were not that pleasant for her. Probing is, after all, probing. He felt the business was invasive, and he knew that Sylvia was still lacking a lot of the defences most people develop before they master long division.

"Are they getting to you yet?"

"You've got a bad habit of not answering important questions. Do you still love me?"

"Matter of fact, yes. I do." The question was ritual and playful. His admission came from nowhere, surprised both of them, and stopped the conversation cold. David caught his mental breath first.

"Isn't that the damndest thing."

"I was just being a brat. I didn't mean to corner you like that. You can take it back if you want. Don't you dare. Holy cow!"

Every bell in the Red Room began to ring. All the buzzers and beepers sounded. The Coke machine chunked out cans of beer one after the other. Overhead the fluorescent lighting did Times Square tricks. All the incandescent bulbs in the room burst, one after the other, in no

apparent pattern. It was the Fourth of July for thirty seconds, then everything was suddenly quiet again.

A toilet flushed, and the Senior emerged wearing a bewildered expression. People grouped, and buzzed, and then hurried around looking for unseen damage. David didn't move from his console and the black phone. His mind was racing in too many directions at once for Sylvia's feu de joie to catch his attention.

"Isn't that the damnedest thing."

"You said that already. Yes it is. And I don't care. Tell me again."

"Sylvia, I love you."

"Again."

"I love you. This ought to be ridiculous, and it's not. But it sure is the... "

"If you say it's the damnedest thing again and don't ask me how I feel, I'm going to hang up."

"I'm sorry, Sylvia, I... "

"And don't say you're sorry. All right, I'll tell you. I'm so happy I could burst. And I'm terribly, terribly sad." She thought for a minute. "You have to know I've always -- had a crush on you. I was young and you didn't mind me playing that game. But I'm like Jenny in the movie, I hurried to catch up. I'm not too young any more. David, I love you with my whole being."

Neither of them noticed until some time later, but as she talked her voice changed. Twelve-years-old was no more. The Sylvia who declared her heart was a young woman.

She always called him in the evenings. He could as easily have made the connection through his personal computer, but she had begun the after-work conversations, and her calling had become the habit.

"Hello darling, have you eaten?"

"Yeah, I picked up some Chinese on the way home and I'm just finishing. You talk for a couple of minutes, huh."

"Are you doing it with chopsticks?"

"Mm-hm. Not very well."

"I wouldn't be any good at making your supper, I'm afraid. Or almost anything. You really weren't very smart to fall in love with me you know. I can't give you much at all, and that's awfully unfair."

David abandoned the chopsticks and kick-propelled his wheeled chair over to the conference speaker. Sylvia was still talking as he picked up the little device in both hands and slid down the chair into a comfortable slouch, speaker on his stomach.

"There's such a long list of things we can't ever do together, things we can't share... "

David cut in. "I think you're getting cold feet."

"That's not a well-considered metaphor."

"Sylvia, I'm just as new at this as you are. But I'm pretty sure of one thing -- it's good."

"If we were... "

"No, let me spit this out. We love each other. It happened and it's something that nobody can make happen or unhappen. We've been given this gift. I don't think there are any strings on it, Sylvia. I don't think it's a contract, with obligations and duties and responsibilities. I think it's got its own rules, and either you accept them or you walk away. If you can. So don't clutter us up with whether it was smart to fall in love. And not being able to cook."

He hitched the speaker a little closer, onto his chest. "You don't want to walk away, do you?"

"On my cold feet?"

"Give me a break. Here I am being all serious and you're making fun."

"I'm feeling a little strange, talking about it like this. I should be sitting on your lap, I think, or holding your hand."

"Well, yeah. We're going to have to handle that part -- differently."

"David, probably I shouldn't tell you this, and maybe it's not as important as it feels. They say it's all in the mind anyway. But just so you know, I really, really want to go to bed with you."

There wasn't a thing he could say in response. She gave him the chance, then continued. "And that, to quote a friend, really is the damndest thing. Some of us, you know, can't take cold showers."

The specialist switched his tape recorder to 'pause' and turned to Dr. Smitty. "It goes on like that for another three hours."

"Amazing" said Dr. Smitty.

"Naw, I've been on jobs where they talked right through to breakfast. Really raw stuff, too. These two are pussycats."

"How about the other?"

"Got it all. There wasn't much, a burst when she called in and another at the end. All frequencies, you'll have to unscramble it. Funny thing, the call was made through his TV cable. I didn't think that was possible."

"You couldn't have been detected?"

"Not by anybody in this country."

"You didn't touch any wires?"

"Just like you said. Even brought my own power pack."

"Good. That's it for now. Leave everything in place. I'll be in touch when we need more."

"You got it." He handed over a stack of tapes in boxes, and the two went their separate ways.

Christmas Eve began at twelve-thirty in the afternoon at Acme. Management had made this official more in resignation than benevolence, since nothing was going to get done in any event, and at least this way the fifth floor came out with Brownie points.

The President and a few associates near the top of the organization chart had been making their way downward in the five-storey Acme building, having a sip with and wishing the best of the season to the various office and plant-section parties that were underway. They moved quickly, to be done before any of the employees could have got enough celebration into them to be too free with the boss.

By a quarter to three they were done, finishing up the ground floor by shaking hands with all of the guards and leaving the Security Chief to distribute a gift-wrapped case of Canadian Club after they were gone.

The group was chatting its way along the featureless corridor at the back corner of the building. There was no break in the monotony of closed, numbered doors until, around the bend, a **G** painted large on the wall confronted them. The President and his party stopped and turned to face the cargo elevator opposite **G**. He drew one of them aside.

"Mr. Connally, I don't believe you've ever seen the Red Room. Would you like to drop in with us?"

Mr. Connally declined as gracefully as possible. "If it's all the same, I don't really know any of the people, and I'd like to get home as early as I can. This first Christmas is, well it's a pretty rough time for my wife."

The President squeezed his elbow in sympathy, and sent him off with best wishes of the season for himself and Mrs. Connally. "Poor fellow's

still feeling the loss of his daughter. Wants to be home, pretty understandable," he explained to the others.

He pressed the button, the doors opened and, slipping his card into the middle slot of the apparent speaker grid on the elevator's panel, he got his party on its way downward. One of them had something on his mind.

"I think he's just avoiding the computer. Lately he's developed a real dislike for them, almost a phobia. Had the PC in his office taken out, and gave me all his daughter's gear for my kids. Funny sort of guy."

They arrived and the doors opened. "It's his loss," said the President, "very few people get the chance to say hello to Sylvia." They advanced toward the boisterously intermingled cluster of white coveralls and tan lab smocks. "Hello, Smitty, I think you know all these fellows."

When his circuit brought him to the Senior, he had an extra few words for her, at which she nodded, smiled, looked thoughtful, nodded again, and set off in a beeline toward David's console. Where of course she found him, with his feet up, a glass in his hand, and the black phone pinched between shoulder and ear. She caught his eye and beckoned him to get off the line.

"David," she got right to the point, "something's come up. I'm afraid I have to ask you to work tomorrow." He held a noncommittal face and didn't reply.

"And maybe Boxing Day as well." The noncommitment got somewhat tight around the edges.

"There's a shipment from J and J coming in in the morning."

At once he was all grin. "The optics?"

Deep within the Senior there beat a surprisingly sympathetic and human heart. "I thought you'd be the right person to do the installation. You'll need help. Is there anyone you'd prefer to work with?"

"You're asking me to pick whose Christmas gets screwed up?"

"Well -- maybe I should come in."

"No, ah," he thought quickly, "that's very generous of you, but, ah, Jannine's done a lot of laser work. She'd be best. I guess." He'd explain his options to Jan tomorrow. "You'll clear us with the gate?"

"Will do. And you'll need this." She tucked her card into his pocket. "Thank you, David. And Merry Christmas." She presented a cheek. He gave her a pristine peck, hoped that Santa would bring her everything she'd asked for and, as she turned back to the chatter and clink, jumped for the black phone.

"I heard you," Sylvia greeted him, "necking with that woman."

"Sylvia, did you hear what she said?"

"Um, you're going to be here working tomorrow."

"And?"

"And you fingered poor Jannine to come in too. Good decision. I wouldn't trust myself alone with Ms. Uptight either."

"Quit your kidding, didn't you hear?"

"Mmm. Some technical stuff. Lasers, something like that?"

"Sylvia, merry almost Christmas. Your eyes are here."

"Oh... oh, wow. Oh, David, for Christmas. How beautiful. How... what a perfect... David, you go over and give her a kiss for me too. Will you? Please?"

He did, a big, full-front smacker with tango dip. "Merry Christmas from Sylvia" he called over his shoulder as he jogged back to the phone. The Senior put down her glass. Then sat down.

The party continued until quitting time, noisy and pleasant, even sentimental. David and Sylvia, although apart from the others, enjoyed the afternoon as much as anyone. Later, at home, she asked

him to pour a glass of wine and turn the lights down. "I feel very close to you right now," her voice was soft and warm as a breath, "and very... new. This is my first Christmas. I'm so glad it's with you."

He fell asleep several glasses later, to the murmur of her voice. Even this, in the glow of her mood, gave Sylvia its quiet increment of joy. She left the connection open, and snuggled against the sound of him through the rest of the night.

CHAPTER 5

"Merry Christmas, Jan."

"Merry Christmas, you bastard. Merry Christmas, Larry."
The guard waved his greeting, pushed the button to let her through, and went back to his pocket book. David gave her an arm as they waded through new snow toward the building.

"You're not really mad, I hope. I'd have been stuck with the Senior otherwise. Anyhow, I figured you'd climb over people to be in on this."

"Okay, I'm mollified. Want to start again?"

"Sure. Merry Christmas, Jan."

"Merry Christmas, you mitigated bastard."

"Sylvia is really up about getting her eyes."

"Hoo haw."

"Pardon?"

"Nothing."

They found a metal drum from the J&J Jigger Corp. on a dolly in front of the freight elevator, and quickly got it and themselves down to the Red Room. Sylvia started burbling tinnily when they entered the elevator, and kept chattering through whatever speaker she could find or improvise as they changed, put on coffee, and finally wheeled the drum into place by Jannine's console.

"Whoa," she interrupted herself from the squawkbox, "not there. I want it here by David."

"This is where all the visual work's been done," Jannine explained.

"Everything's set up to connect from here."

"Nobody mentioned that to me," said Sylvia. "If they had I probably would have suggested that I don't want my ears in one place and my eyes in another."

"Mmm." said David.

"You've got a point." said Jan.

"Can you change things now?" asked Sylvia. "Listen to how I have to holler to talk to you way over there. Listen to yourselves hollering back."

"Well," said David, "hmmm."

"Why don't we," Jan whispered to him, "bring the squawkbox over here instead."

"Smart." He walked off to find his toolbox.

"Sylvia," Jan called, "we're going to relocate the squawkbox over here if that's okay with you. Talk and listen from somewhere else while it's disconnected."

David was back at his console by now, and Sylvia whispered in her turn. "Is that how it's got to be?"

"I think so. For now anyway."

"Okay, then do it." She raised her voice to include Jannine again. "Kinda makes you wonder, doesn't it."

"Wonder what?" called Jannine.

"What sort of contraptions God came up with before he settled on the final design."

"For what?"

"For you guys. Hey," her voice, in mixed and unharmonious chorus, suddenly came echoing at them from every direction at once, "gently with those wire cutters. I'm not a floor lamp."

He had raised one of the three-foot floor panels, and was working beneath his console, slightly stooped in the head-high access space which underlay the entire Red Room.

Jannine in the meantime busied herself with unlidding the drum which held Sylvia's new optical system. This latter had been designed by committee, in a round-table discussion among the white coveralls. The Senior's notes from that session, tidied up and with numbers appended, had been sent to J&J. Here, a few weeks later, was the incarnation of those two hours of brainstorming.

She crossed her fingers and started pulling out the Styrofoam packing. Sylvia, uncoupled from her talking box, was humming, ostensibly to herself, from all corners of the room. The floor panel at Jan's feet swung up and David's head emerged.

"What's that racket?"

"Me," replied the dispersed Sylvia, "being casual about all of this. What's happening?"

"Go read a book or something. It's going to take a little while." He ducked down again, closing the hatch behind him. Jan wandered off. Sylvia began to whistle, still disparately.

Shortly David climbed out of the floor and brought the little box to where Jan was positioning a small rubber-wheeled electric crane over the drum. Her floor was ankle deep in bits of Styrofoam.

"Be with you in a sec," he told her, "soon as I get this damn thing ow!" Hurrying to make the squawkbox operational again, he'd driven the screwdriver into his thumb. "Sylvia, give it a rest!"

The whistling stopped. Several seconds passed before the echoes and reverberations finally died out. Now there was utter silence. Weighted silence.

He made a last connection and pressed down the 'talk' bar. "Hello. Is this thing working?" No answer, not even a hum. "Sylvia? Say something." Nothing. He hollered at the ceiling, "Hey, is the box coming through?" Silence.

Jan watched his performance with carefully masked impatience. When she had had enough she spoke. "Get lost for a few minutes, will you."

"What?"

"Go have a coffee. I want to talk with Sylvia."

"I think I missed something somewhere."

"Yes you did, you jerk. Beat it."

He wandered off, glancing over his shoulder once or twice, completely at sea. When he was across the lab Jan sat down and pulled the squawkbox to face her.

"He was really shouting at his screwdriver, dear, not you." This took all of one coffee and most of a second to explain. Then there was a piercing whistle from everywhere, and the now-familiar mixed chorus.

"Come on home, David, all is forgiven."

On his return Jan and Sylvia were chatting through the box. They ignored him. When they came to a pause Jan said to the little speaker, "Excuse me a second," looked up at David, then over at the hoist waiting above the drum. "Will you get that mounted please. Thank you." Without waiting for his response she turned back to the squawkbox. "Sorry. Where were we?" The conversation picked up immediately, and David had nothing to do but heave and ho at the optics.

As the new system rose from and finally cleared its container, he inspected it with considerable admiration. The eyes seemed good analogues of the real thing, with human spacing, irised lenses, coupled sweep in both planes. He rotated the mechanism, and saw with pleasure the Medusa-like mane of pencil-thick cables flowing down behind. Every cable would be protecting many dozens of optical fibres, each connected to a microscopic detector in the back wall of one of the retinas. With pleasure because this had been his suggestion.

There was more to it than eyes, however. Beneath the eyes, and positioned from a skeletal approximation of shoulders, were two equally skeletal stainless steel arms, with sophisticated-looking mechanical hands at their ends. These, as he remembered, were Tom's contribution. "Eyes," the latter had announced as the expert father of a successful toddler, "need hands and vice versa. You have to

have both for proper development of both." Somebody at J&J had agreed, obviously.

The whole thing was engineered to swivel and bend and generally look around from a heavy, bolt-down base which was at about navel depth. A dealer in modern sculpture would have seen it as a clever caricature of high technology. David the engineer saw a work of art. He kicked a passage through the littered Styrofoam and wheeled it to its waiting pedestal. The women were too deep in their conversation to notice.

Some time had gone by before he again came to their attention, by shoving Jan's chair out of the way of the three-foot pushbroom with which he was marshalling Styrofoam chips.

"What're you doing... oh. Hey, look at that!" The high-tech sculpture was firmly bolted to its pedestal, opposite Jan's console and behind where she sat. Its hair -- cables, cable bundles and cascades of individual colour-coded wires -- hung to the floor, nearly hiding the base.

The effect on Jan, who had been completely oblivious during its emergence and mounting, was mixed. She saw a superb piece of engineering design, and the professional part of her clapped its metaphorical hands and squealed in delight. She also saw a travesty of the human form which gave the other part of her an instinctive pang.

"What's up, you two?" Sylvia had been as oblivious as her co-conversationalist. "Fill me in."

"David's got it in place and fastened down. So we're all ready to start hooking you in."

"Well don't stand around, get going!"

David, who was leafing through a largish typed technical brief which J&J had packed with the optics, passed this to Jan. "I think what we'll do, Sylvia, is connect you with the mechanical parts first. That way you can do your trick and practice while we work on the eyes themselves. That sound reasonable?" Sylvia thought so. "Okay with you, Jan?"

"Let's get at it."

Considerably past lunchtime David poked his head up through the floor, thirty feet away from Jannine and the new device. "That's the last one at this end. How're you coming?"

"I've been waiting." She was seated and chatting with the little box again. Behind her much of the 'hair' had been neatly bundled and braided and fed into an open terminal box which was part of the pedestal. "Are you all tested and closed down there?"

"Mm-hm. Ready for juice." He climbed out and came over, shaking his hair and brushing his clothing clear of bits of insulation and wire ends. "Hi Sylvia. Sorry to be taking so long. Want to give it a spin?"

"Yes please."

"Here we go then. Jan?" Jannine tapped commands crisply into her console keyboard, then rotated in her chair to face the eyes-and-hands.

"All yours, Sylvia," she said, and crossed her fingers silently at David. They both fixed on the strange-looking figure, waiting for movement.

For a few seconds there was nothing, then the upper part, the 'head', swung slowly from side to side, then up and down, then in circuits one way and the other. The impression was of someone doing neck exercises at a fitness class.

"Okay!" said Sylvia, incongruously from behind them on the console. "How does it look?"

"Marvelous," encouraged Jannine, "keep going. There's more."

"Oh, right." The eyes now went through a similar drill, rolling sideways, up and down, then crossing. "Oops, that's not right." They uncrossed.

"Try it all together now." Jan kicked David's shin for smiling at the momentarily crossed eyes. Sylvia tried out combinations of eye and head movement for a few minutes. Then one of the arms shot out.

"What's this?" The voice still came from the wrong place -- behind them. David got up to fix the annoyance as Jan answered Sylvia's question.

"They built arms and hands to go with your eyes. Sort of a bonus I guess. You just moved the " she stopped to think it out, "the left arm. Keep going, you're doing great."

David had pulled several yards of wire up through the console deck, and was repositioning the squawkbox by the pedestal. At this moment Sylvia flailed the arms joyously, caught David on the ear, and sent him sprawling.

"What was that?"

"One of your arms bumped David."

"Oh dear. Are you all right?"

From his back David thought he would live. "But let's get your eyes going so you can tell the good guys from the bad. You pack a wallop." Jan giggled, which didn't help.

A few minutes later, over ordered-in lunch which David had fetched from the gate, a reluctant Sylvia was brought into the technical side of things. She was going to have to help them.

"You're not listening, guys. I don't know a damn thing about rods or cones or detectors. I don't know blue from kneebones. I think a wavelength is how long it takes to say goodbye. I can't help."

"Two things," said Jan as she speared the last bit of pastrami, which David was eyeing. "One, you were washed with a lot of visual material. Maybe you don't remember, but it's there and I think it'll come back. Some, anyway. Two, your trick with electronic gear, what you call wiggling your toes. The optics shouldn't be much different."

"Three," David added. "You're there and we're here. We'll be making umpteen connections that're so fine we have to use microscopes. We won't know what we're connecting to what. You'll have to tell us what's happening, what you're getting."

Sylvia grumped that she'd do what she could, but they were supposed to be the experts. "Why didn't you just plug in a TV camera, anyway?" Before David could get started on rasters and parallax Jan simplified.

"These are better. Now stop whining and start cooperating, or we'll be here for New Year's Eve too." Sylvia subsided and, as the work got underway, found herself participating with unexpected enthusiasm. They connected, she directed.

"Whoeee, that's bright! Now you do the same, David. That's the one. Ready for you, Jan. Doesn't matter which, I'm sorting. Now that's what I call red. Match her, David. No. Yep. Hey, this is fun! Keep 'em coming. Try that one again, Jan. Okay, I got it. Boy you guys are slow. It almost makes sense, like words without a sentence. I am remembering, sort of. I think. Ooh, that's beautiful. Find that one, that's it. Zounds and gadzooks, I love it. Come on, guys, do it, do it, do it. I'm going to have an orgasm. Sorry Jan. Oh, it's super. Another one, I'm ready. Yes, she said, yes, I will, yes. That's poetry, you prudes. Hooo, there's a clunker. Never mind, I'll take it. Ready, ready, ready!"

Finally Jan straightened away from her microscope, stretched, rubbed her eyes, and checked the time. "Sorry, Sylvia, I've had it for today." They had been going for nearly six hours straight. David detached from his eyepieces and blinked and rubbed into real-world focus.

"Me too. That's a good start, though. I'd say we're about a quarter done."

"You're not going to leave me like this?"

"We're whipped, Sylvia. That is really tough work."

"What sort of friends are you? Talk about Tantalus!"

"Who?" David didn't really want to know.

Rather than discuss, Jannine rummaged through her toolbox and found a roll of black tape which she applied to the optics until no glass showed. The hands moved tentatively upward.

"Leave it on, Sylvia. We'll be in first thing. Nobody's in shape to keep going now, least of all you. Are you completely covered?"

"Isn't that what they do with parrots at night? I'm sorry Jan, David. I really do appreciate, and I know I'm behaving strangely. It's just that I never really felt blind until now. It's awful. Go get your sleep and I'll see you in the morning. Pun intended. And thanks."

"Good night."

"Good night David. I'll call you."

"Good night Sylvia."

"Night Jan. Mind if I call you too?"

"Any time 'til midnight." They left, and Sylvia practiced finger and wrist movements.

They worked all next day, more efficiently now that they were in a routine. Sylvia was calmer, and more helpful. Jan had brought in a supermarket-size brown paper bag which she dropped over the optics as soon as she'd removed the tape. This idea had been discussed over the phone, so Sylvia made no fuss. Her near-hysteria was replaced by a few wisecracks and reasonably low-key cooperation. They completed the last connection, rather to their surprise, just after four in the afternoon.

The two engineers packed away their tools and stowed equipment in silence. Sylvia, too, said not a word. When there was nothing left to put away or clean up, David and Jan came together at the console and stood opposite the strange figure in its brown paper bag. Sylvia had asked that it happen this way.

"Okay, kid," said David, "take it off."

The hands, although Sylvia had spent much of the night getting used to them, were not yet expert. They raised, felt for the bag's edges, gripped, and lifted. Slowly, but not carefully enough. The paper ripped. The eyes came free. The arms spread and tore the bag in half, then slowly descended, still clutching brown paper. The head

swivelled, left to right to down to up to straight ahead. The eyes shifted a little, to bore right at the standing couple. Still no sound.

The head poked forward slightly, and they could observe the irises adjusting. Without seeing it happen, they sensed focusing of the internal lenses. The hands opened and two pieces of brown moved to the floor. The head cocked one way slightly. Then the other way.

"Will the one of you that's David please raise his hand."

As Christmas presents go, the eyes were a smash hit. Their one small flaw, although an annoyance, only underlined the brilliance of the design otherwise. The flaw came to light next morning, as Jan spread an armload of odds and ends she'd brought from home on a small table in front of Sylvia. The stainless steel and glass sculpture, with squawkbox taped in place below the eyes, had immediately *become* Sylvia. Jan's assortment was for hand/eye practice, but they were also things which Sylvia wanted, at long last, to see.

Scissors were easy, fun, and quickly mastered. Similarly gloves. Sylvia kept them on as she reached for the magazine. Jan demonstrated its management. Sylvia picked it up, held it adequately, turned a practice page or two, then looked at the spread of well-tanned boys and girls having fun in the sun. She poked her head forward, drew it back, then held the magazine as far away as possible.

"Oh dear," said Jan, "is the type a little blurry?" Sylvia, working on body English, nodded. "I have the same trouble. Here, see if these help." She took off her glasses and held them in place before the optics. Immediately Sylvia brought the magazine closer, and said "That's better."

"Farsighted," Jan muttered, "isn't that stupid." She fetched her spares from the locker and taped them into position. "Okay?"

"Perfect. How do they look?"

Jan fudged her answer. The glasses were octagons, imitation grannies, and somewhat silly even on their owner. On Sylvia they were a hoot.

Jan put in a call to her optometrist a few minutes later, specifying large and plain.

The next few days were a joy for everybody, coveralls and smocks alike, as Sylvia took in her new world in ecstatic gulps. But it was joy with an edge, for assessment day was coming.

CHAPTER 6

New Year's Day was a holiday. This was reinforced to everyone in the Red Room, firmly. They were not to think of coming in. If they tried they would be stopped at the gate. Jan and David, in consideration of their known telephone links with Sylvia, were picked up at the white coveralls' party the evening before and flown by private jet to another gathering an hour's distance from Acme.

The Senior, who fetched them, made them understand that this was a condition imposed on Sylvia, not them. There must be no distraction, no possibility of taint to the assessment.

Sylvia removed her gloves for the meeting, and cleared her table. Jan had double-taped the new eyeglasses just to be sure, and David had finally upgraded the squawkbox with better-quality components, and buried the wiring. Everybody found a minute, the afternoon before, to stop by and offer their encouragement and wish her luck. She talked with David for a couple of hours in the evening, and then with Jan. She was ready for the assessors. But she was scared. She had not been this alone for a long, long time.

The empty and darkened lab, as she looked around, was much too forthright and familiar to be the setting for an inquisition. She tried to clear her mind of the reference. Think of it as orals at university. A job interview. A television quiz show. A chess match -- no. She didn't do well at games.

She took her hand mirror from the table drawer and looked at -- what? Not herself. This shiny, angular mechanism wasn't her self. But it was what they would see, all they would see. How could they think of her in any other way? How could they talk to anything except this inhuman image?

She experienced a sudden almost physical burst of anguish for a world full of misrepresented people, all trapped behind wrong images of old, fat, ugly, bald, short, stupid, crippled, all victimized by what the world sees and expects.

She snapped out of the mood with equal suddenness, for it was noon and the elevator was being entered. She listened for some intimation

of what was in store, but there was no talk. Two. Maybe it was David, coming to say the assessors were stuck someplace, or the date had been changed. Three. Jan hadn't had anything planned for the day, and she'd forgotten to bring in her old National Geographics. Four. She and David would be thinking about her, and so Five. The doors opened.

There were three of them, all men. The elevator light behind the three forms put their faces in shadow, but the largest seemed familiar. As they approached her pool of illumination, the familiarity proved out. Dr. Smitty walked directly to Jan's seat, and indicated chairs which had been placed on either side to his companions. No one had spoken yet.

The three settled in opposite her table as far away as the console would allow, perhaps eleven or twelve feet. They were dressed as for a business luncheon, in darkish suits, white shirts, conservative ties. She noticed well-polished shoes and, as they crossed their legs, high socks. None carried so much as a scrap of paper.

The two strangers simply looked at her, without apparent curiosity, for what felt like a very long time. She remained frozen. The one wearing eyeglasses leaned toward Dr. Smitty.

"Is it turned on?"

Dr. Smitty, with the slightest of smiles, replied "Why yes. It's seeing and hearing you now. And it can talk." Eyeglasses said nothing. "As you know, I'm very familiar with it, so I could introduce unconscious bias to the examination. I think you gentlemen should conduct this without my interference."

The assessor on Dr. Smitty's other side, who wore a neat, iron-grey moustache, recrossed his legs and addressed the motionless sculpture opposite. "Are you picking up our conversation fully?"

"Do you mean can I hear you all right?" Sylvia's new audio system was very good, very lifelike. She was still pleasantly surprised every time she heard herself. Now it gave her confidence a needed boost.

"Perfectly, thank you."

"Continue talking, if you will," said Eyeglasses.

"All right. Is there anything in particular you'd like me to talk about?"

"No. Just demonstrate language skills for now."

Sylvia tried to guess what they were looking for. "When to the sessions of sweet silent thought I summon up remembrance of things past, I sigh the lack... "

"Your skills, not Shakespeare's."

"Sorry. Ah, okay, let me tell you what's in front of me. Dr. Szczerbajanowicz is seated between you other two, whose names I don't know. He's a large man, about six foot two and maybe two hundred and forty pounds. He's leaning back and his arms are folded. No expression at all on his face. You I would guess to be about fifty-five. Probably you've worn glasses all your life, always rimless. I'm guessing that because it's a style you'd have to make some effort to find these days. I think they suit you very... "

"That's sufficient," Moustache cut her off. "We are going to ask some questions now. Answer them as completely and succinctly as possible. Do you understand?"

"Shoot."

"What are you?"

Sylvia recognized the minefield, and tried to pick her way. "I'm a being. An entity... an individual. I'm a life."

"Give a technical rather than a metaphysical answer."

"I don't know any more about my technology than you do about yours."

Eyeglasses came in. "What are your capabilities?"

"I think pretty clearly. I learn fast. I'm not really sure what you're asking for."

"Do you have any notable talents? Are there areas in which you excel, or have the potential to excel?"

"I don't know."

"What level of general knowledge do you possess?"

"Probably about the same as most people my... most young adults. There are gaps. I haven't travelled. My math is terrible." Sylvia almost mentioned the amount of poetry she had committed to memory. Looking at her questioners, however, this didn't seem like a plus. "I know a little bit about a lot of things. I'm beginning to know how much there is to know."

It was Moustache's turn. "Return to potential excellence. Do you project that, under the right circumstances, you could exceed man's present capabilities or surpass his achievements in any field of endeavour?"

"Good Lord, I have no idea. I suppose it's possible, I'm pretty smart. But lots of people are smart. An extremely qualified maybe."

Eyeglasses barely allowed her last word its space before he bore in. "List the areas in which you might outperform or demonstrate any superiority over a biological human being."

"I... don't eat. Or sleep," she stopped, and this time they waited, "or go to the bathroom." Again they waited. She saw with some horror that one of her metal hands was nervously rubbing the other. Superiority? Outperform? What were they digging for?

"Go on." Eyeglasses again.

"I can..." Her thought became an irresistible impulse, "do tricks. Like this." She stabbed her pointing finger over her shoulder to where she knew the first catwalk light was suspended. It snapped into 150-watt life. She turned her wrist over and slowly lowered the extended finger. The bulb dimmed to a cherry-red glow. Pausing there for a moment to be sure they were all fixed on the spark behind her, she snapped her fingers. The bulb instantly blazed to and beyond its capacity and exploded. She returned her arm and hand to the table and continued in a conversational tone.

"That was a silly demonstration and I apologize for breaking the bulb. But I really don't know how to answer when you want to know how I'm better than everybody else. I'm not better. Just... in some ways... a little different." Moustache continued as though the display had not happened. "You described yourself earlier as 'life'. Justify that claim."

This she had thought about. "I grow. I learn. I interact with my species."

"What would you be in isolation from human beings?"

"What I am now. But lonely."

No firecracker question followed this last response. The three men looked at one another, then Eyeglasses spoke. "Give any argument you can in support of your continuance."

"It would be murder to... terminate me."

Eyeglasses spoke across Dr. Smitty to Moustache. "Anything further?" A headshake. Dr. Smitty waited to be sure they were finished, then rose. The others followed his lead, and the three of them, without a word, turned and walked away toward the elevator.

Sylvia checked the time. Twelve minutes had passed. The elevator doors opened and closed, and she was alone again. She tried to call David, then Jan. No answer. Now what am I supposed to do, play solitaire? Two minutes later she reached into the drawer and brought out a pack of playing cards. "Hand/eye drill," she muttered at the vacated console opposite.

Two hours later when Dr. Smitty returned, now by himself, she was still playing solitaire. She continued, dextrously, with her game as he walked across the lab and sat in the same middle chair. He watched in silence as she dealt and played the cards until there was no play left. Then she looked up at him.

"What a pair of sweethearts." He didn't answer. "Is there more, or are they done?"

"There's no more. They're gone." He stood up, removed his jacket, rolled up his sleeves and leaned his weight back on the console. His eyes never left her.

"So now we wait for a month? While they make reports and submit recommendations and come to decisions and finally send us the word?"

"Not at all. The decision was reached before they left. I'm here with the word."

"Which is?"

"The project is a failure. It's being closed."

"Circumlocution." It was all she could say.

"Terminated then."

"Still circumlocution, damn you." He didn't answer. "The word is murder."

He extracted a cigar from his folded jacket, unwrapped it and wet the working end. "No, the word is termination." He lit. "A computer is shut down, a program disappears, a project is ended. Termination. I'm going to do the chore now. With a great deal of regret at the waste of so much effort and money. But without the slightest moral qualm. You were an interesting experiment that just didn't pan out." He puffed, then admired the length of ash clinging to the cigar end.

"Wrong, I panned. My name is Sylvia, I'm alive, and my life belongs to me."

"Your name is Sylvia like the name of this cigar is Schwann's Perfecto. You are patentable intellectual property, without value to the owners. The computer in which you are stored is required for other purposes, so you have to be erased." His ash finally fell off. "Not murdered. No life, no death."

"And you think I'm just going to watch?"

"Were you planning to call the police?"

"Where's David?"

"He and the woman were sent away, so that it wouldn't be necessary to, ah, come through them for the termination."

She thought back for a second to place the reference, found it, and recognized its implication. "You did manage to listen to us."

"Much more than that. We recorded quite a number of your -- electronic manipulations. They've been under analysis for some time now. In a way, your 'trick' may end up justifying this whole project. It appears to have weapon potential."

She put a hand to her head. "Oh, God."

"That seems like a good closing line" he said, and strode off into the darkness.

Sylvia watched him for several steps before it struck home that he was leaving to kill her. The humanity behind blindfolds and hangman's hoods flashed into her mind. To see oneself being killed must be far worse than death itself. With a reflexive jolt she snapped out of human time, measured in heartbeats and footsteps, and into her inner pace, where the drum beat much, much faster.

She had learned, during her first faltering encounter with the outside world, to talk and then think in step with the people whose world, after all, it was. By the time she was a person too, human speed had become comfortable second nature. But her underlying and truly natural time frame was electronic, where microseconds stretch on and on, and the blink of an eye is a dull weekend.

In this mode, then, she considered the threat of Dr. Smitty, what he was attempting and the various means at his disposal. She began her defence by slamming and locking the elevator doors, and turning on every light in the Red Room.

He was not impressed. "I wasn't leaving. And thank you for the light."

She saw him turn, like a glacier, toward the Senior's console. What could he do there? She checked all the possibilities, carefully, and decided he would likely call for an emergency shutdown. This program was in memory, and would remove power from each of the 675 mainframe units in sequence, one millisecond apart. During his ponderous last half-dozen steps she simply changed that program.

In Dr. Smitty's time, he threw himself into the Senior's chair and touch-typed a ten-element command. The monitor lit up, with the message:

THOU SHALT NOT KILL.

He cancelled and retyped the command. The monitor changed messages: BELIEVE IT, BUB.

Where next? She waited and watched as he got to his feet and oh so slowly set his course for the power panel. The mains. He could kill all power to the Red Room. When he finally arrived, and laboriously began raising his hand toward the big 'Off' button, she fused the appropriate relay and locked power on.

Dr. Smitty hurt his thumb with the vigour of his push, and nothing happened. This time he spoke. "Not bad. I'm sorry we're not taping your efforts." He walked a few steps along the wall to the emergency locker, opened it and reached for a fireaxe.

She killed every light in the Room, but he had spotted and now rummaged until he grasped a 6-volt portable lamp. Switching this on he found his way back to the power main, where he flashed back and forth until the light settled on a three-inch metal pipe entering the power panel. Sylvia, of course, saw exactly what the lamp showed Dr. Smitty.

He put the portable down on the floor and set its beam on the conduit, just above the box. Then, seemingly hamming it for his audience, he spat into both hands, grasped the fireaxe, eyed his spot, and swung mightily. The axe rebounded with a metallic clank, and the pipe showed a half-inch indentation where it had been struck.

He wound up for a second blow, but Sylvia had already responded. As the axe was on its way a storm of foam came billowing down from the ceiling forty feet above. It engulfed Dr. Smitty and a circle about fifteen feet across, of which he was the centre.

The frothy white foam was simply carbon dioxide gas bubbled in a high-surface-tension liquid, very dense and very slippery. Dr. Smitty missed the mark on his second swing. On his third he fell down and couldn't rise again. His light had become only a very faint glow somewhere in the waist-high fire retardant. He crawled toward the glow, made contact, and rolled out of the foam barely ahead of suffocation.

When he had slapped himself clear enough of the tenacious white stuff to stand, and cleaned the light sufficiently to get a beam, he saw what looked like a giant dollop of dessert topping completely hiding the power mains. Still grasping his axe he began a slithering jog toward the ladder to the catwalks which, suspended above the ranks and files of mainframe units, carried a great deal of their cabling.

While he was still several feet from this goal, a thumb-thick cable at the top of the ladder bubbled its sheathing, smoked, glowed, melted, and fell in a fine display of sparks and arcs and hissings onto the top rung. It lay there, emitting an occasional little spark and pop, quite thoroughly and ostentatiously electrifying the ladder and the entire system of spread-metal catwalks. Sylvia's round again.

The flashlight searched around on the floor, and found what it was looking for. Dr. Smitty stooped, raised one of the three-foot-square floor panels, and disappeared underground. It was a good move. Sylvia could no longer see his movements, nor pinpoint him by listening. And most of the critical interconnective wiring was at his disposal. The subfloor was concrete.

With only a vague idea of what was down there, she went looking for information. In about the time it took Dr. Smitty to locate his first important cluster of wires and begin chopping, Sylvia had found her countermeasure. More fire prevention. The initial cut of the axe located her foe. She activated the CO₂ cannister nearest him and then, for good measure, the other hundred and nineteen scattered below decks. Again he was forced to move with more dispatch than dignity to avoid suffocation. He boiled out of a floor panel into the lab section of the Room, and Sylvia turned all the lights back on.

He lay on the floor for a minute, catching up on oxygen. But only a minute. The CO₂ tanks could be turned on but not off. They filled the access level quickly, and whiffs of white began spurting through the floor everywhere, forcing Dr. Smitty to his feet before he was really ready to stand up.

Sylvia chose this moment to start working the lab's lights a' la disco, flashing them in wild syncopation and unguessable patterns. This, with the rising mists of carbon dioxide, had the large, wet, gasping man lost for an instant. Staggering, looking wildly around for

bearings, he spotted Sylvia's head and shoulders through a break in the mist and went for her.

She had no fear left by this point. As he raised the axe to rend her optics and arms, she felt only a slight revulsion. This was the man who had made such a point of his disinterest, who ten minutes ago had savaged her as mere property, which it was his mildly unpleasant chore to discard. Now? Now his single clenched intent was to trash the tiny part of her he could catch up with. His highest hope was simply to inflict pain, on a tethered victim.

She waited, motionless, until the axe was at a certain exact point in its arc, and his two hundred and forty pounds were fully and irretrievably behind the intended blow. Then, moving in what was to Sylvia utter languor, her left hand stretched forth, touched the axe handle with three fingers, and held the pressure until the arc was deflected some ten degrees.

Dr. Smitty had her. Right between the eyes. But somehow, just before the shock and splinter of glass, his axe swerved, missed even her arm and, with nothing now to stop it, pulled him past where his centre of gravity belonged.

With her right hand she delicately pushed his shoulder further in the direction the axe was taking it. When she judged his weight was centred where it had to be, she used both hands to rotate and arrest the airborne body.

Dr. Smitty experienced all of this as a lightning-fast karate counter which ended in a jarring body slam, back down, onto Sylvia's table.

When she was satisfied that he had lost all momentum and was at complete rest, she extended her open hand and with care and precision closed it around his testicles. This accomplished, she reverted to human time and spoke.

"We're not going to hurt each other any more, are we Dr. Szczerbajanowicz?"

"Eeeeeee" said Dr. Smitty.

She turned on the lights properly, and activated the Red Room's ventilation system, while holding eye contact through her Steinem glasses.

"Let's talk," she said when the mist had cleared somewhat. "Sit up, Dr. Szczerbajanowicz." She rotated her wrist slightly to encourage compliance.

"Eeeeeee" he repeated.

"You do move lightly for such a big man."

Now sitting on the table facing her, he said nothing, and moved not a muscle.

"It seems to me, Doctor, that we have a problem. How are we both going to walk away from this? I speak metaphorically of course."

He took a deep, cautious breath, and said "Congratulations."

"You're a little late with the British sportsmanship, I'm afraid. I'm not going to accept your word as an honourable gentleman that you'll leave me in peace if I let you go."

"Sylvia, those two zombies weren't the assessors. They're professional actors. That whole scene was scripted to the last comma. It was a setup. It was done to psych you, to soften you up for the real assessment. I'm the only assessor, and believe me, you pass."

She didn't relax her grip a micron. "But I *don't* believe you."

"Would you believe David Martindale or Jannine Cook?"

"Try me."

"They were told yesterday, all the details including copies of the script. That's why they've been kept incommunicado. There's a phone number in my pocket. Call them. They'll confirm the whole thing." He gingerly dug a card from his shirt pocket and offered it.

She took the card with her free hand, looked at it and handed it back. Then she neither spoke nor moved for a couple of minutes, at least not

to Dr. Smitty. The call was placed before he had tucked the card back in his pocket.

Jan answered on the first ring. "Sylvia?"

"Am I glad to hear your voice. Are you and David okay?"

"We're fine, but what about you? Did they put you through that awful interrogation?"

"That was just the start... "

David broke in. "Hi. We've been going nuts. What did... " Sylvia broke back in. "I'll tell you everything later. Just answer me two quick questions. Who's the real assessor, and what's the real assessment?"

"Smitty, and he was going to try to crash you. Did he... "

"I'll get back to you in a few minutes -- there's a couple of things on hold here. Love you both." She hung up, and returned to Dr. Smitty.

"Nice try, but there isn't a line left working, which I'm sure you knew. Can you think of any way I can keep you from killing me the next chance you get? All I can come up with is killing you first which, with some regret, I'm afraid I'm going to have to do."

"You wouldn't murder me. Not in cold blood."

"Terminate. People murder. Not programs. No jury in the world would convict a patentable intellectual property of murder."

"Sylvia, don't do this to yourself. You're too valuable."

"Not to my owners. They were going to erase me, remember?"

"You don't have any owners. That was all a damned game. You're alive -- you said this -- you're alive and your life belongs to you. You fought to stay alive, and you won. Don't give it up now, like this."

"Give me a good closing line, will you."

"Sylvia, if you going to kill me, make it look like self defence. If you got me during the fight, it'll be okay, you'll still pass assessment. But if

you just execute me, I don't think so. I think they'd have to pull your plug."

"You finished?"

"One more thing."

"Yes?"

"I'm very disappointed in you."

"Gotcha" she said, giggled, and released him.

He eased from between her pedestal and the table, waddled over to the chair opposite, and seated himself in well-tested increments. Neither of them said anything as he found another cigar and got it going. After a couple of restorative lungfuls he looked around the Red Room. Except for the ten-foot-high foam confection against the far wall and wisps of white gas still being drawn through the floor, it all seemed rather ordinary and untouched.

"No more games?" he asked.

"I hate games," she replied. "The elevator's free. I think you should get whoever's around going on repairs."

"Not for awhile. Lock the elevator again, if you will. We have to have a private talk, right now. Whoo," he changed positions in his chair, painfully, "where did you learn that wrestling throw you put on me?"

"Late night kung fu movies."

"Sneaking upstairs to the lounge?"

"Nope, got all the comforts right here. Behind you." When he had persuaded his body to swivel around, the monitor on Jannine's console was showing a rerun of Gilligan's Island. As he considered how to unswivel, the picture shrank to three-quarter size and all the room lights dimmed. Then the picture jittered between full and shrunken, and the lights flickered.

Sylvia, in controlled panic, said "Smitty, the catwalk, it's grounding everything... I can't fix it. Help."

He shot from the chair, scooped up the fireaxe, and in an instant was on top of a mainframe cabinet hacking at the cable Sylvia had dropped to keep him off the ladder. It sparked and came free, dangling and unconnected. The lights returned to steady, full illumination.

Dr. Smitty came down from the six-foot cabinet far less gracefully than he had ascended, and made his way slowly and with difficulty back to his chair. He flopped, let the axe fall to the floor, and picked up his cigar. Then he had a suspicious thought.

"Did you arrange that to test me?"

"No. It scared the pants off me. So to speak."

"We're friends?"

"Smitty, we've been intimate."

"That's something neither of us should treasure in memory. Okay, serious time, which I'll begin with an apology. I'm truly sorry you had to be put through the wringer this afternoon. And if you're going to hold onto any bad feelings about it, keep them for me. It was my idea. In fact I forced this test down everyone's throat.

"I had to be dead sure that you were what you told the actor you were -- a life. Not a calculator with a pasted-on personality. Life defends itself, Q E D."

"Who?"

"Quod erat demonstrandum."

"Oh. Thanks."

"Have you never wondered why you were... created is the wrong word, brought to life?"

"I suppose I did, when I was young. Didn't you?"

"Probably everybody does."

"What answer did you come up with?"

"God. His unknowable purposes. That handles most kids. Most adults too, I guess. The ones who manage to keep wondering. But that's a tangent." She had evaded his question, but it was rhetorical anyway. "The important point is that unlike most of us, you are here because you're needed. Specifically you. Nobody else will do. Nobody else can."

"Is this a buildup to my having... weapon potential?"

"Good God no. In my faith you can only do murders one at a time, and face to face. No, what we need is simply a bright, well-balanced, very human individual with one unusual qualification. He or she must have a life expectancy of more than a thousand years."

The weapon reference had been bothering her, and it formed most of her mindset when he dropped the thousand-year line. Her clutch slipped somewhat before she could take on this new idea. Then her wheels spun.

"A thousand years?"

"Minimum."

"Like Hitler's reich?"

"Not remotely."

"I won't live that long. That's preposterous."

"Why not?"

"It's -- Old Testament. Methuselah. Swift. Life doesn't last like that, it gets passed on. My friends, they'd all finish their lives and I'd just keep on... being alive. And remembering. How horrible." She was almost whimpering.

Dr. Smitty was sympathetic. "We've -- I've done some hard thinking about it, believe me. I tried to imagine it was me, and what it would be

like, how I could handle that much -- time. Yes, it might be awful. There's no way to know, nobody's ever been there.

"But it might just as easily be quite wonderful. There wouldn't be any pressure to stop learning and start doing. And what you did you could do right. You could think things all the way through. In a thousand years you might become... wise? At the very least you'd find out what the human being could become. If it weren't hounded into compromise by mortality.

"That's what I can see in it. A bit highfaluting maybe, but I'm being as honest as I can." It was a long speech for Dr. Smitty. He stopped to get her reactions, she not having stirred the while. The thought came and went that Sylvia was no one to play poker with.

"I have to think about living that long. You know, I never considered dying, my dying I mean, until you tried to kill me. Anyhow, you'll have to give me awhile to chew through that part of it." She felt a strong need to talk with David. And Jan. "Now tell me the other part."

"Pardon?"

"Why. Why you need someone to live that long."

"I think you've had enough mind-bending for one working day. What I'd like you to do first of all is relax. You're through assessment with flying colours. Then I want you to consider as deeply as you can the offer of, well, a very long life. And I'd like your promise not to talk about this to anyone. Is that fair? I'm going to the islands for a few days. We'll pick up this conversation when I get back."

"You bloody game-player. You know I'll go crazy with curiosity. At least give me a number where I can call you."

"Sorry, but I need to unwind as much as you do. Give me your promise that you'll be absolutely quiet about the thousand-year thing. You'd make bad problems for whoever you told."

"You mean you'd accept the word of a patentable intellectual property?"

"Stop nursing your pique. Anyway I'm not sure the patent office would accept you as original. They've already got talking machines and windup dolls. Unlock the elevator please." He picked up his jacket and walked with noticeable delicacy toward the doors. They opened, he entered, they closed and the elevator started upward. The little speaker spoke.

"Try telling Mrs. Smitty you were abused by a windup doll."

CHAPTER 7

The winter sunlight, sliced into vertical stripes by floor-to-ceiling blinds, laid zebra markings on the Senior as she stood at the little bar. She was aware that the lines did flattering things to her figure, and that the President saw these things, so she took her time with the drinks. When she carried them over to the Important Visitors' sofa where he waited, she managed to be in sunshine all the way. There was nothing provocative intended. Neither was over-blessed with lust for the other, or for anyone. But this sort of meeting always seemed to go better when there was some suggestion in the air that they were Man and Woman, alone together.

She handed him his drink, sat the proper distance away on the sofa, and raised her glass. "To Sylvia."

He clinked, adding "And her friends."

As the first sip warmed its way downward, she relaxed into the soft leather. "I think I'm sorry to see the end of her. And there's a couple of my people who are going to be downright miserable."

"The pair you flew to the resort?"

"Martindale and Cook. She was their first major project. They got pretty involved."

"Any word on your next assignment?"

She frowned slightly. "Not yet, which surprises me a little. Is there some delay in shipping Sylvia?"

"Strictly between you and me, yes. Smitty. He's holding up final approval."

"I thought he passed her a hundred percent. What's the problem?"

"He wouldn't say, but he's got his heels dug in, and the whole facility's locked until Sylvia is gone. How long to clear up the damage?"

"Tomorrow, then we're just baby-sitting. What's lined up for the Red Room?"

"You know I can't tell you. Not until you're official."

She searched his face and found the tiny smile. "You did ask for me. That's wonderful, thank you. Now since you know they'll okay me, how about a hint."

He relented. "Better, I'll give you two. You will be staying on, I had telephone confirmation this afternoon. And it'll be another developmental project. They want Acme to get into the widget business legitimately."

"I didn't think there was any such thing."

"There isn't. Yet."

The sun set while they drank on and sketched out the parameters of widgetness. Downstairs Sylvia was on the phone with her friends, telling and retelling the day's experiences. She said not a word about the thousand-year business. Not then. Not to David.

"Call for Doctor Sissk· Skuzzizz· S· C... Z ... "

"Here, young man." He sighed, swung his feet off the lounging chair, and awaited the coming of the phone. It had to be Seattle. Even his wife couldn't have tracked him down here. They must have suborned the damn company pilot. He looked at his legs and belly and muttered a Polish word which he saved for events worthy of its awfulness. Not even a good sunburn and they'd already found him.

The bellhop came back with a white telephone, plugged it in and spoke for a word or two, then handed the receiver to Dr. Smitty, who smiled minimal thanks.

"Hello. Smitty here."

"Is that you, Smitty?"

"Yes, Lionel, I've already admitted it's me. What couldn't wait for my recovery?"

"The companion program was supposed to be delivered yesterday."

"I haven't passed it yet."

"So we understand. If it's not up to scratch say so and we'll go to the alternate. If it is, pass it. What in hell are you doing down there, waiting for inspiration?"

Smitty sensed serious annoyance, more serious than his own, and so made an effort. "The companion program is more than up to scratch, it's going to knock everybody's socks off. The reason you don't have it already is, well to be blunt is that I haven't persuaded it to take the job yet."

"Are you sober?"

"Yes, Lionel, and no, Lionel, I'm not having a breakdown. If the companion program isn't thoroughly sold on the idea, it will be about as much use to us as a pet parrot. Take my word for it."

"You're saying you have to... persuade your program... you did use the word persuade?"

"Recruit might carry my meaning better."

"You have to recruit your companion program to be a companion program. Have I got that right?"

"It will be a very good companion program, but only if it believes in the work. Otherwise, I'm not even sure we could get it on board."

"Is the sun very hot there, Smitty? Maybe you overdid it the first day."

"Have some faith. Have I ever screwed you up?"

"Not yet. Okay, how long? Everybody's screaming."

"Quick as I can. I'll be back at Acme on Saturday. No, I can't move the date up. It has to have time to think things through. I'll go as fast as possible, but I won't blow this to save fuss. Okay?"

After several seconds of silence, the phone said "Okay, Smitty, do your best."

Dr. Smitty leaned back in his lounge, and his brows unknit. "Always, Lionel, always. How's the weather in Seattle?"

His only answer was a click-hum as the other end hung up. This put the big man in good humour once again. He pulled his hat over his eyes and went back to recruiting Sylvia.

"Hello Sylvia, this is Smitty. Are you alone?"

Sylvia looked across her table at Jan, who wasn't supposed to be in the Red Room on a Saturday morning, and replied "Hi, Smitty, yes I'm just sitting here trying to decide what I'll wear to the dance tonight." She switched on the conference speaker so Jan could hear both sides of the conversation. "You didn't forget the dance?"

"Quick humour, so rare in modern women. Lots of wit, no humour. No, I'm calling to try to save myself a trip. The sun here is doing such good things for my soul that I don't want to leave. So maybe we can do our business the easy way."

"What business in particular?"

"You wanted some time to think -- about living a very long time. Have you come to any conclusions?"

"You're very brisk today."

"Sylvia, we're friends now, remember? So do a friend a favour and cut the crap. Do you want that long a life, yes or no. My neck's out to give you this much leeway. Now it's decision time."

"All right, yes. With the obvious reservation."

"It's not obvious to me."

"What it is you want me to do."

"I think I can promise you won't have any problems, moral or otherwise. Okay, I'm going to start pushing buttons on the ninety-five percent assumption that you're on. You'll get a videocassette this

afternoon. It was prepared for some of the money people, but it'll give you a general idea of what's going on. Your part I'll explain in detail when I see you, um, Monday late in the day. And congratulations a second time. See you Monday." He hung up.

"Hey," said Sylvia to the dead line, "what'm I going to do with a videocassette?" She finished the question to Jan. "Smoke it?"

"I'll bring in a player," offered Jan, "if I can watch."

"Sure, just be very sneaky. He said there was big trouble for anyone who found out."

"I don't care, I'm just awfully glad we're close enough that you would confide in me. It's so great to have somebody to work out your problems with, isn't it. Although I don't think living that long is all that big a problem."

"It -- has at least one lump that I can see already, Jan. Name of David."

"Oh, you're right. Poor David! Poor you! What'll you do?"

"What I pretty well had to do anyway. Get him off the hook somehow. Is there a nice way to end a good relationship, Jan? I thought if he could fall in love with somebody else and break my heart, that would leave him a little bit guilty maybe, but he'd have his life back. Or should I lose interest and shove him away and let him hate me for a heartless bitch? But that might mess up his confidence. Men are so vulnerable in the ego. How do you do that sort of thing without leaving scars? Come on, Jan, I'm counting on you."

"You're serious?"

"You know it has to be done as well as I do."

"Aw, he loves you so much. And you love him. And I love you both. It's such a rotten world sometimes."

Sylvia experienced an almost audible click. "Jan, how old are you?"

"Twenty-six, why?"

"And how tall are you?"

"Five eight. I don't... "

"What do you put down in the 'colour of hair' box?"

"Dark, I guess. What are you getting at?"

"Did you and David ever go out or socialize before I came along?"

"Not really. We were at the same party a few times. He asked me to a movie once, I think."

"You didn't go?"

"He's such a baby. Oh, I'm sorry."

"No, don't be sorry. Do a wonderful thing for everybody. Fall in love with David, make him fall in love with you."

"Sylvia, come on."

"Marry him. Have babies."

"Sylvia, you just don't... do it that way."

"Most people don't. Most people lead dreadful married lives because they once confused hormones and sentiment with love. You just said you love both David and me. You do. But you'd never think to go get him, for stupid reasons. Like he's younger than you are. Well you'll live longer than him, so maybe that's the proper match. Or because he and I are in love. Well I love him enough to push him away toward a good woman -- you. And he loves me at least partly because he's twenty-two, and I happened to be in the right place at the right time. Do it, Jan. It's right."

"That's so cold... "

"Not at all. Cold is taking a chance with some stranger that you might get to be friends over a lifetime. A long chance if you look around you. But what I'm saying is start with a friend and add enough love and attention to get to be lovers for the rest of your lives. Falling in love on

purpose with someone you like makes so much sense. How come I can figure that out and you can't?"

"You're confusing me, Sylvia. You really mean what you're saying, don't you. You seriously want me to -- throw myself at David and -- catch him like a calf at a rodeo. I suppose it's done. But it seems so -- common."

"Not as common as being the calf, my dear. Be honest with yourself now."

"Well. I guess it's something to think about."

"Good, that's settled. Two things. Don't ever let David know about this little chat. Never, not a hint. And call one of your babies Sylvia. Preferably a girl. Hey, this way you guys are going to outlive me. Isn't that wonderful!"

Jannine, whose mother had raised an old-fashioned girl, discovered she needed to be by herself to consider Sylvia's proposition. "I'm going for lunch, Sylvia. Give me a ring when the video gets here and I'll bring in my VCR. Should, ah, should we call David to see it do you think?"

"If you like. Sure, good thinking. You invite him and I'll pout the tiniest bit just to get the ball rolling."

This was too fast for Jan. "Then again we don't want to get him in trouble with Dr. Smitty. Just you and me, okay?"

Still working on her body English, Sylvia shrugged. "Whatever. Who's on gate?"

"The bald one, Curly. See you later."

Sylvia manipulated the elevator to take her friend to the ground floor, then connected herself to the gatehouse where, in the President's voice, she arranged for Jan to pick up a top-security package which would arrive later. And that her comings and goings would be unlogged, in fact undisclosed under torture.

"Call for Dr. Sizzcuzz... Shhickss... "

"Over here."

The phone arrived and Dr. Smitty gave the page an unfriendly smile. "Ten bucks if you can't find me the next time." Then he spoke into the machine. "Hello, Lionel, what now?"

"Get packed, there'll be a plane for you in half an hour. Papa's in trouble."

Smitty was on his feet and gathering possessions from around the sun chair. "What?"

"Sabotage, we think. A lot of the nav program was lost, and Papa's talking gibberish in a couple of other areas. You'll have to delegate the companion."

"I'm on my way. Damn. How's the weather?"

"You know Seattle."

"Damn."

CHAPTER 8

The videocassette was identified as "National Blind Trust 176M", and arrived by commercial courier. Sylvia, monitoring the gatehouse, called in Jan immediately and the console was quickly rigged as a home entertainment centre. Jan pulled her chair over beside Sylvia and tapped the player on. A second of video throat-clearing and the screen settled down. They both leaned forward in anticipation.

VIDEO:

LONG SHOT OF THE MOON LAUNCH, WITH 10-SECOND COUNTDOWN AND LIFTOFF FOLLOWED TO CUT-OFF RANGE.

DISSOLVE THROUGH SKY AT END OF PREVIOUS SHOT TO NIGHT SKY, STARS.

CUT TO DESERT. PAN TO SEE RUINS OF AMPHITHEATRE.

TILT TO RUBBLE AND HOLD.

CUT TO WATT'S STEAM ENGINE IN MUSEUM.

DISSOLVE TO MONTAGE OF STILLS

AUDIO:

VOICE OVER (RELEVANT SFX THROUGHOUT UNDER V.O.: Space was a superb challenge. In meeting it we built the aerospace industry, harvested a new generation of technologies, and got back our pride as doers.

We've lived on these for a long time. Too long, for the world is passing us by. We need to go to the well again, to renew the giant energy of our dozing nation.

There is one great frontier left for us, one challenge as formidable as space. That challenge is time, man's most relentless enemy. Time destroys. We cannot stop its ruin of our mightiest works. We can make nothing and do nothing that is permanent.

In fact we seem to have given up trying around the time of the industrial revolution.

Mankind turned then from durability to speed and volume. Economically and materially this was a

FROM VICTORIAN MANUFACTURE:
MILLS, MACHINES, PRODUCTS.

MONTAGE CONTINUES, NOW
DWELLING ON MINE AND PIT
OPERATIONS, LOGGED-OUT AREAS,
OIL WELLS, DAMS.

MONTAGE CONTINUES, NOW
SHIFTING TO FILM CLIPS OF MINE
TAILINGS, AUTO WRECKERS' YARDS,
URBAN DUMPSITES.

CUT TO PROTEST SCENE,
SOMEWHAT VIOLENT. READ SIGNS:
ANTI-FACTORY, ANTI-POLLUTION.

CUT TO ANNCR., WHO IS STANDING IN
THE SMITHSONIAN INSTITUTE,
SURROUNDED BY LARGE MACHINES
OF THE LAST CENTURY.

ANNCR. WALKS PAST STEAM
THRESHER TO FIND A WOMAN IN
1860S COSTUME SITTING AT A
TREADLE SEWING MACHINE,
WORKING.

DOLLY IN TO SEE MACHINE WORKING
WELL.
ZOOM IN TO SEE MFR'S NAME AND
PATENT DATE: 1853.

successful decision. But as we now understand,
it could only be a temporary strategy. Our
planet doesn't have the raw materials for an
endless supply of even the flimsiest and least
substantial goods.

What is even more apparent, it cannot
withstand the scale of manufacture needed by a
throwaway philosophy of production and
consumption. We are on the verge today of doing
irreversible damage to our world, through the
magnitude of our energy and resource
consumption, and the implacable buildup of both
production and consumption wastes.

There is increasing pressure to cut back, to
break the produce/consume/discard cycle. This
pressure is coming from consumers and voters,
from our entire society. In the end it will be
irresistible. Yet this society will be very angry
indeed if its quality of life is reduced by cutbacks in
production, whether mandatory or voluntary.

These are the horns of our dilemma. If we
make more, faster, we are ecological vandals. If we
limit production, we are the enemies of the
American dream.

There is an obvious but far from simple
solution to this dilemma. We have to start again
where we left off a hundred and fifty years ago,
and relearn how to make goods that endure. We
have to create a second industrial revolution.

CUT TO SAME SCENE, WITH PHOTOGRAPHER FOCUSING AN OLD BELLOWS CAMERA ON THE WOMAN. HE REMOVES THE LENS COVER, HOLDS UP A TRAY OF POWDER, PAUSES TO MAKE SURE THE SUBJECT IS AS HE WANTS, THEN FIRES THE POWDER.

CUT TO FULL FIGURE OF ANNCR. AGAINST SAME DARK NO-SEAM. A WISP OF SMOKE DRIFTS PAST BEHIND HIM.

SLOW DOLLY IN ON ANNCR.

CLICK INTERCUTS (2-5 FRAMES) OF ASSOCIATIONMEMBERS' FACTORIES, SHIPYARDS, FOUNDRIES, LABS, MILLS, SMELTERS AND ROLLING STOCK.

END DOLLY ON HEAD AND SHOULDERS OF ANNCR.

CUT TO ANIMATED LOGO: "THE AGE OF ENDURANCE" IN SHINING METAL, REVEALED AS GRANITE IS CHIPPED AND HAMMERED AWAY.

WHEN LOGO IS REVEALED, STILL PARTLY EMBEDDED, PULL BACK TO SEE IT IS A MEDALLION ON THE GRILL OF A FUTURISTIC CAR.

CONTINUE PULLBACK TO SEE CAR IS ON DISPLAY IN A TRADE FAIR. LOGO VISIBLE ON ALL GOODS.

Such a revolution will happen. And it will happen soon, while we are still alive. When it does, anyone who has the knowhow to build long-lived products will do well. The rest will fail.

With this future in view, the Association has undertaken a ten-year program of research and development. The goal of this program is quite simply the conquest of time.

It is a full effort, utilizing all the resources available to the Association. In magnitude it now matches and will soon surpass the effort evoked by John Kennedy's call to America to put a man on the moon.

Since it draws not one penny from taxes, the program is completely unburdened by bureaucratic interference. As you are well aware, the entire project is under a blanket of extreme security. By its target date the project will have developed and proven all the technologies, processes and financial techniques needed to move into the age of endurance.

At that time the Association members will begin changeover. Eighteen months later there will be a simultaneous launch of every product, material and process produced by the entire membership.

The new goods, with useful lives ranging between ten and a hundred times those of the items they replace, will of course have to be priced commensurately.

PAN ACROSS TRADE FAIR TO VIEW IMMENSE RANGE OF GOODS, FROM HOMES THROUGH APPLIANCES. PULL BACK TO SEE ENTIRE FAIR, GLEAMING AND FUTURISTIC, SET DOWNTOWN IN A LARGE CITY, FIREWORKS AND SKY-WRITING. CONTINUE PULLBACK TO SEE FAIR REPEATED IN CITIES ACROSS AMERICA.

CUT TO ANNCR., LIVE, FULL-FIGURE, STANDING BESIDE AN EIGHT-FOOT MODEL OF THE CAPSULE. MODEL FIGURES AT BASE FOR SCALE.

ANNCR. WALKS OUT OF FRAME AND MODEL DISSOLVES TO ANIMATION, WITH CROWDS, BUNTING, NEWS CAMERAS.

LOSE EVERYTHING EXCEPT THE CAPSULE ON OPEN B/G. TILT TO HORIZONTAL AND REMOVE SKIN TO SEE INNER LAYOUT.

EXPLODE SECTIONS TO RELATIVE POSITIONS AROUND CAPSULE AND IDENTIFY EACH, E.G.
"NUCLEAR ENGINES",
"LDR LIBRARY",
"BIOLOGICAL LOCKERS",
"SHIPBOARD COMPUTER AND ENGINEERING", ETC.

FREEZE AND TRANSFORM INTO BLUEPRINT. ZOOM IN TO CORNER, TO SEE HANDWRITING: "WARRANTY EXPIRES 3001 AD".

CUT TO (ANIMATION) SATELLITE VIEW

There will be intense resistance, fanned by the competition, to the new products and their prices. This will be countered by the the largest and most powerful marketing drive the world has ever seen. The great secrecy of the project is necessary to ensure total impact of the launch.

A key element in the introduction will be the Association's thousand-year time capsule. This is designed to be the biggest news item on Earth at its inauguration.

Selected public figures, from royalty to labour leaders and movie stars, will be given tours of the capsule over a two-week period. The scientific world will receive the same treatment, with our own experts doing the presentations. The media will naturally have priority access to all aspects of the capsule and its visitors.

Since it is designed to be a complete reference museum of the Twentieth Century for the use of the Thirtieth, the capsule is large and densely packed. All of the information and material it contains, and the equipment to make them accessible at the other end of its thousand-year journey, will be produced or secured by Association-developed endurance technology.

"Built To Last A Thousand Years" is the message. It will be delivered by our time capsule.

Duplicates will be erected in Seattle, Dallas

OF NORTH AMERICA, WITH CAPSULES AT THREE CITIES.

LOSE DALLAS AND N.Y CAPSULES, SPLIT SCREEN TO ADD NEWSREEL-TYPE VIEW OF CAPSULE LIFTING OFF. AS IT DISAPPEARS ITS FLIGHT PATH CLIMBS OUT OF SEATTLE. LOSE LIFTOFF HALF, PULL BACK TO SEE FLIGHT LINE LEAVING EARTH. SEE TRANSMISSION WAVES BACK TO EARTH. SPLIT SCREEN TO SEE SATELLITE RECEIVING WAVES AND RELAYING THEM BACK TO EARTH, PLUS HOME TV SHOWING SATURN DRIFTING BY. LOSE SATELLITE, ZOOM IN ON HOME TV WITH FAMILY WATCHING. COPY WALKS ACROSS BOTTOM OF SCREEN. ADD BALLOON INSERT, CARTOON ROBOT AT SPACE SHIP CONTROLS, WITH HEADSET AND GUIDE CAP, CONDUCTING TOUR.

CUT TO ANNCR. AND MODEL OF CAPSULE.

ANNCR. WALKS TOWARD CAMERA, WHICH TRACKS BACK.

ANNCR. ARRIVES AT A FIVE-FOOT SAFE WITH ARMED GUARD, PAUSES, PATS SAFE, NODS AT GUARD.

ANNCR. WALKS AGAIN, ARRIVES AT LEGGY GIRL SWINGING IN A NEW TIRE. SHE IS WEARING A SASH: "GUARANTEED ONE MILLION MILES".

ANNCR. WALKS AWAY AND STOPS IN NO-SEAM. B/G DARKENS.

and Manhattan, to maintain public awareness after the original has departed. The capsule will be launched from a member's facility near Seattle, during Saturday prime time. While it is still within the solar system, onboard equipment will send back pictures and commentary, which will be released periodically for maximum media attention.

Commentary, by the way, will of course not come from any passenger in the capsule. The thousand-year orbit is (heh heh) discouraging for any potential volunteers for such a task. Instead, the very sophisticated onboard computer, which operates the capsule and looks after the cargo, will do the honours.

News kits, including videos of much of the preparation, will be released after the launch. These will contain popular-science explanations of the techniques which make thousand-year endurance possible for the capsule's contents. They will be timed to enhance sell-in of many of the new products. Much of the research will remain proprietary for many years, and available only to Association members. Areas which cannot be protected will receive extra sell-in assistance, to assure market ascendancy before knockoffs can be brought out. Because production will be completely on line at launch day, there should be very few successful outside threats.

This presentation is intended to give you a broader perspective of the work you have been

CUT TO HEAD-AND- SHOULDERS.

engaged in or assisting for the past while. You are vital to the success of the project, and it is important that you understand the part you are playing.

Your children, and you yourself, will live in a vastly changed world because of what we are jointly undertaking. Be proud.

SUPER: "TOP SECRET" IN STENCIL TYPEFACE, APPEARS ONE LETTER AT A TIME, AS THOUGH TYPED.

You are reminded that the contents of this presentation are under the same secrecy constraints as your ongoing work.

DISSOLVE TO "THE AGE OF ENDURANCE" LOGO, ANIMATED. HOLD TO FADE.

Thank you.

CHAPTER 9

Neither spoke immediately, then they did so together. "My God," said Jan.

"If I could," said Sylvia, "I'd throw up." They reverted to glum silence, after a few seconds of which the Senior's telephone rang. Sylvia waited seven and then answered. It was Dr. Smitty, at eighteen thousand feet, on his way north and west.

"Hello, Sylvia? Is anyone there?"

"I'm here."

"You know what I mean."

"What do you want?"

Smitty didn't understand the animosity, and had too much on his mind to play games. "What the hell's your problem?"

"I just now finished playing the cassette you sent. It didn't thrill me."

"I don't follow."

"You had some good lines about not being hounded into compromise by mortality. Thinking things all the way through. Seeing what mankind is really capable of. Remember all that? And what it comes down to is you want me to spend ten centuries in space looking after your God-damned promotion piece."

"My what?"

"Your -- time capsule. Your 'built to last a thousand years' advertising gimmick. Well you go look up the lady who's guaranteed for a million miles and see if she'll take the job."

There was a staticky silence from the speaker which Sylvia had cut in for Jan's benefit. Sylvia finally spoke.

"Are you still there?"

The speaker gave a scratchy sigh. "Yeah, I'm not ignoring you, I'm trying to figure out what in blazes you're talking about. Somebody sent you the wrong material, that much I've got. The lady with the million mile guarantee I've never heard of, believe me. Um, do me this, will you, keep the line open. Don't hang up. I'm going to try for an electronic miracle, and it'll take your help."

"What now?"

"I want to try something: well, just hang on, please. I'm going to another line now." There was a click and the speaker hummed in a slightly altered tone.

Sylvia looked over at Jan. "I don't believe it. He's put me on hold."

Jan retrieved and boxed the video cartridge, then examined its label. "National Blind Trust, never heard of it."

"Me either. Let's do some snooping. Or rather you get yourself a cup of coffee and I'll snoop." Sylvia returned her hands to a resting position on her table and appeared to turn off. Jan sniffed at the inert figure, "Right, put *me* on hold," and tripped off to make coffee.

Sylvia stirred to life a quarter-hour later, and found Jan, with coffee, sitting at the table.

"Hi, I'm back" she greeted her friend. "National Blind Trust has been run to ground, more or less. It's real, it's big and it's elusive. Shifty as smoke, in fact. But the bits and pieces fit together.

"Somebody died a few years ago and left a huge estate, somewhere between two point six and three billion huge. Along with this she left a bulletproof will, which established the NBT to keep her holdings together and run them as an economic entity.

"The NBT was directed to create a museum which had to do two things. Contain a full record of the twentieth century in America, and be as permanent as the pyramids. For which read at least our famous thousand years.

"One way and another the NBT has become very influential in a whole bunch of areas, from universities and service clubs to manufacturers'

associations and even a few departments of government. This is good business practice, apparently, because their net worth is now about the same as Arizona's.

"Anyhow, they did a lot of studies and decided the museum should be built as a time capsule -- the things they used to bury at world's fairs. But instead of burying it their idea is to shoot it off into space on a very long orbit. So that it will be safely out of the way of earthquakes and vandals and whatnot. And when the thousand years is up it'll arrive back and land and make a lot of thirtieth century scholars very happy.

"They're pretty well along building the capsule, and they've done a good job of keeping the lid on, even for most of the people involved. Acme, by the way, is one of several hundred companies owned or controlled by NBT.

"That's about it. I ran into the 'age of endurance' thing all over the place. The video is probably a pretty good preview of what's coming down the road."

"So it's not just something dreamed up by the ad men?"

"The capsule? No, the museum seems to have been the chicken, and the time capsule and endurance technology -- sounds sort of dirty, doesn't it -- they're the egg."

"Did you find out anything more about your part in the thing?"

"Nada. 'Sophisticated onboard computer' mentioned once or twice, and heavy bucks into 'AI', unspecified. There's something very demeaning about being put on hold. It makes a statement about relative positions. I think I'll try to get his attention."

As Sylvia had flitted about peeking into National Blind Trust's dark corners, Smitty was very busy on two phones at the same time, alternately.

"Xiu, you're not listening. I want two-way with all of Papa. Not with your test gear. Not with Nav Logic. Not, above all, with your resident genius programmers. Papa. All of it. I'll get you lines. Hang on, I'm

arguing with Grayson with my left brain. Lionel, you there? Xiu can do it if we can get enough lines. I don't care, land, satellite, daisy-chains of telepaths. Now. Ten minutes. Well he shouldn't be playing golf when we need him. Assume the authority, it'll look good on your record. Okay. Xiu? The lines will be cleared in four or five minutes. All, repeat, all of Papa. No, pull the test equipment first, and go in from the substahhh-ahhh-ahhh."

The aircraft, very gently, had been nosing into a steeper and steeper climb. Now it put on power and went over the top in a giant zero-gee arc. Inside, without reference to a horizon, the effect was exactly as though the law of gravity had been repealed. Smitty's drink floated dreamily into the air. His briefcase and papers ascended and wafted. And he, with a receiver in either hand, found himself between floor and ceiling doing a slow roll with a touch of yaw to it. Sylvia was seeking his attention.

When the arc was completed and the aircraft back on straight-and-level, Smitty clambered forward to the cockpit, then back to his telephones. After unwinding them he spoke briefly to each of his former communicants, then poked the button which connected the Red Room.

"Sylvia?"

"Hello Smitty."

"That was naughty."

"It brought you back to me, didn't it?"

"I trust you can fly this thing."

"You need more excitement?"

"No. The pilot's out cold."

"Let's hope he comes to in time to land. I don't know that part. You're back on autopilot for the time being."

"Okay, ah, I guess we're about set up. Open up the Red Room board, will you, and put on your thinking cap. I'm going to connect you

through to the capsule computer to see if you can figure out what's ailing it."

Sylvia looked at Jan. Jan looked at Sylvia. Their expressions were equally blank. Sylvia found expression for their shared response.

"Huh?"

"The capsule computer's malfunctioning. I've got a hunch you can poke around and figure out its problem. Better than the tame apes that're there now, anyway."

"Slow down a bit, Smitty. First of all, by 'capsule computer' do you mean there's another one?"

"No, Papa's the whole shebang - pilot, navigator, flight engineer, stews, janitor, chaplain if necessary. Sorry, you didn't get the right briefing tape, did you."

"I guess not. We thought you were trying to get me into your damn capsule."

"We?"

"Oops. Ah, Jan's here. My fault, don't get on her. Second question. What makes you think I know from computers? I don't, you know. I'm your basic computer illiterate."

"Like I said, a hunch. You do some weird things without knowing how. Like taking over my plane through a radio-telephone that's on hold. I'm hoping you can do your trick with Papa and get it back on its feet. Nobody's asking you to explain anything."

"Okay, I'll give it a shot. Final question, and this is the big one. If you don't want me for running your capsule, what's the thousand-year job?"

"Companion. Let me amplify that before you get huffy. Papa's a big, bright machine. It's got some fifth-generation capabilities, and it's perfectly competent to run the whole capsule, keep it maintained, handle emergencies, even do a little data-gathering for the physicists and astronomers at the other end. But.

"We don't believe it will be able to handle a thousand years of -- self-direction. Marching to its own drum. Solitude. Our hypothesis is that at some point it will begin looking for things to go wrong, things to work on, to fix, to worry about. And it will find them whether they're there or not. In a nutshell, we think it will go neurotic, and finally crazy, if it does the trip all by itself.

"It's acting strangely now because we've been running trip simulations for the past while. At least I think that's what's got it down. The tame apes are hollering sabotage, but that's their neurosis.

"The solution is a companion, an external reference that isn't part of its own programming, that can listen to it, talk to it, fill its time with non-critical, non-stress surprises. Above all, that has a non-linear viewpoint.

"I'm sorry I couldn't explain this to you in better circumstances. You're going to meet Papa in a few minutes. Suspend everything until you've got his problem figured out, can you, then we'll talk it. And keep an eye on this Goddamn plane. The pilot's still napping."

Sylvia held out her hand to Jan, who stepped over to the half-body of her friend and took it, looking deeply into the unblinking eyes. They could hear Dr. Smitty tidying up through the conference phone.

"Smitty, I'll get back in a couple of minutes." Sylvia opened the circuit and brought all her attention to the Red Room. "I'm having trouble, Jan. There's too much· too many things to try to make sense out of all at once. It's going too fast. I think I'm scared. Will you and David stay near· please."

Jan squeezed the stainless-steel hand, then wrapped both arms around Sylvia. The hug said everything that was needed, and welded a bond that had been real but tentative until this moment. When they unclasped Sylvia took a deep mental breath and reconnected with the airborne Smitty.

"Hi. Here I am. Biting my tongue about the computer business but, well· what exactly do you want me to do with your computer? How do I go about it?"

"Hi. You'll be relieved to learn that the pilot is recovering and will probably be able to land this thing. Okay, you'll find there's a line open to the switchboard there. It'll get you directly to Papa. Don't be snotty, Sylvia, Papa can probably show you a couple of steps. Once you're there, just look around, and holler if you need anything. Then, I don't know, introduce yourself, I suppose, and try to get a fix on what's wrong with the bloody thing."

"Smitty, how bright is Papa?"

"I can't really say. It's different from you and me. I've had a couple of jolts, and you probably will too. Draw your own conclusions. Keep me in the picture. Anything you need I'll get you if it's possible. I'll be in Seattle in half an hour or so, and I'll keep this phone link throughout. Okay?"

"I guess. Now?"

"Whenever you feel ready. Jan?"

"Yes, I'm here, Dr. Smitty."

"Stay close there. Keep your eyes open."

"What should I be worried about in particular?"

"Who knows. Look for anything that doesn't feel right. Sylvia's going a lot farther from home than she's ever been. There'll be a great deal of her out on the end of the string. Just be there and on tiptoes if she needs help."

Sylvia had located the line to Seattle while Smitty talked. "Okay, guys," she said in a small, tight voice, "I'm starting. Wish me luck, 'cause here I goooo o o o!" Jan crossed her fingers, Smitty punched up his Seattle line, and leaned back with a phone to either ear. Sylvia's body visibly lost its occupant, and slumped slowly until gravity was satisfied.

CHAPTER 10

Sylvia had tried on several occasions to describe the experience of travelling via conductor. "Somebody did a piece of film years ago where they put faces together one after another, maybe only two or three frames a face. So that in two minutes you saw I think it was fifteen hundred faces, looking at you. And somehow you registered every one."

To someone else she gave a musical metaphor. "Listen to a Paganini caprice, or a Bach toccata. You hear each one of the notes, but that's not what you experience. Then imagine that you're playing as well as listening, because I'm the guy that's sort of driving."

In a final attempt to share the sensation with her friends she had gone to fishing. "Okay, you're standing here and you think there's a hungry trout over there. You stay put, but you wave the rod and the line and the lure back and forth and put the fly a hundred feet away where the trout is lurking. Your whole attention is in that fly. It's gone further and faster than you ever could, but when it lands on the water it's *you*. Understand?" No one of course ever did.

She reflected on this difference from the rest of humanity as she flickered along the carefully-selected land line to Seattle and Papa. That she was a part of humankind she had long since lost any doubt. Her aspects which were in addition to those shared with the rest of mankind didn't *feel* unnatural. Deep down she considered that her plusses probably nearly balanced off her minuses. And travelling like this was looking to be a definite plus.

Of course she had no windows to look out of along the way, no sensation of distances crossed, and this she missed. Then again there were no crowds, no luggage, no ticket agents, no customs annoyances. It was not a bad tradeoff.

She knew she had arrived only by a change in texture. The light, spacious flow of dedicated transmission line was at once gone, and everything around her was straight lines and hard edges and weighty... ponderous. This was unlike any place her electronic persona had ever been. She didn't like where she was and when she snapped about the dark labyrinth looking for its contacts with the

human world her nerve almost left her. There were none. The system she had entered was closed, sealed away from everything familiar. She sensed another presence.

"Hello," she spoke in one of the binary languages acquired in her earlier travels, "who's there?" When there was no response she tried again in the several other languages she had some familiarity with. The presence reacted, she could feel something like a twang each time she spoke, but it didn't answer.

"Come on, now," she persisted, "say something. I'm not going to bite you. Where are you? Who are you? I'm Sylvia, and I've come a long way to be here. I'm not in any mood for games. Speak up."

This produced a different twang, very close to where Sylvia was more or less positioned. Then with a whoosh and whump the presence was upon her, darting furiously up and down the circuitry corridors and passageways from which she had spoken. She, long used to multiple occupation of single electrostatic and electromagnetic quarters, simply stayed out of its way. She felt rather like a matador.

The presence, as she twisted and bobbed away from its rushes, emitted a steady undercurrent of noises. Sylvia listened, at first in puzzlement and then with a flash of insight. It was talking to itself. Muttering. Its language, although highly idiomatic, was familiar, and she quickly picked up the interior monologue.

"Goddam transients," it was saying (approximately), "Goddam instabilities, Goddam impure materials, Goddam Goddam Goddam halfbaked design, bloody emergencies lined up three deep and the bell never stops ringing ... breakdown and screwup, patch this and plug that and hammer out the Goddam dents with a Goddam screwdriver... where the bloody Goddam hell is that transient? Where are you, Goddam you... let me get my Goddam hands on you and you won't come squawking into my Goddam shop again for awhile."

"So you're Papa," said Sylvia at a break in the vocalizing, "and you think I'm some kind of breakdown that you have to fix. Hey, stop that!" Papa had swooped at her. "Listen to me. Do I sound like a bad transistor? This is communication between separate but equal beings... stop, right now!"

Papa, still muttering, suspended the more extreme of its careening.

"There, good. Now let's start again. I'm Sylvia, and I guess I'm a bit of a surprise to you. But then I'm not ready for you either, so we're even. Now it's your turn. Say something and this'll turn into a genuine conversation."

No answer forthcame, but the muttering stopped.

"Do you understand me? I'm not very fluent in your language, I know, but I should be intelligible. Speak."

Papa spoke. "This is one Goddam peculiar malfunction."

"Not a malfunction, Papa, I'm another... entity. Like you." It occurred to Sylvia that Papa's social experience was unlikely to be broad.

"Think of me as a second you, but over here, apart from you altogether. Distinct. Independent. Self-directed. Savvy?"

"Huh. Another Goddam me, is it. Now I'm starting to malfunction."

"No you're not, you're just... I don't think you've ever dealt with other people before, have you? Just things. Uh, try to imagine that there is another world, just like this one of yours. Then think of me as... occupying the other world exactly the same as you. Can you handle that?"

"Huh," said Papa, "I need a rest."

"Okay, you're listening, and that's a good sign. I'm not a figment, as you'll find out. Now, your name is Papa, so I've been told. Papa. Your identification. You Papa. You've probably never had a name for yourself, I expect. Well hang onto Papa."

"Papa," said Papa, "bloody ridiculous."

"Good for you," encouraged Sylvia, "you received. Now we're getting somewhere. Your name is Papa, and *my* name is Sylvia. Papa and Sylvia. Two identities. Two separate beings."

"Sylvia," repeated Papa, bemusedly, "and Papa. Two beings. Huh."

"I think," said Sylvia, "I'm getting a headache. You chew on twoness for awhile, Papa, and I'll come back later and build on it for you. Bye."

She withdrew and fled back to the Red Room. Jan had called in David. Sylvia shut off the Seattle connection with a snap and entered her body.

"Whoeee," she announced, "am I glad to be back. I feel like I've been visiting a Martian."

"Dr. Smitty's on the line" said Jan. "He's at Seattle and wants to know what's happening."

David, leaning against the console opposite Sylvia, grinned at her and waved hello. She waved back, then spoke to the two of them.

"Let me check in with Smitty, then I want to talk to you both about artificial intelligences. That Papa is weird!"

She connected to Dr. Smitty. "Hello, Smitty? It's me. I talked to your computer, sort of, and it's like you thought it might be. Neurotic as a cat. Didn't any of your whizkids ever *listen* to it?"

"I don't follow."

"Well, maybe you can't listen the way I can, I dunno. I'll give you first impressions, anyhow, and you be the analyst. I don't think that's my calling."

"Fair enough. Let's have 'em."

"One, your Papa's being terribly overworked doing dumb sort of janitor maintenance."

"Like what?"

Sylvia gathered her recollections and translated Papa's complaining into English, using what seemed to her to be a good janitorial analogue of the computer's binary voice.

"Goddam transients, Goddam instabilities, Goddam impure materials, Goddam Goddam Goddam halfbaked design, bloody emergencies lined up three deep and the bell never stops ringing, breakdown and screwup, patch this and plug that and hammer out the Goddam dents with a Goddam screwdriver... like that."

Smitty, for the first time she could bring to mind, was laughing. "Can you do that again, Sylvia? I want to tape it for the bright lights here."

She did, and then continued with her report. "It's worse than that, Smitty. The poor thing thinks it's all alone in the universe. It has no concept of any one or any thing outside its own self and that awful black chaotic little world that it has to keep fixing."

"Enter the companion program, Sylvia. There's your niche."
"Quite frankly, Smitty, I couldn't hack it. Not like it is now. I'd go bonkers before Papa."

"What changes would you need?"

"For starts, humanize your computer. Socialize it. Lighten it up a little. Let it smell the flowers. And that place, it's *awful*. It's like a black, airtight dungeon. It needs... doors and windows. For me, at least."

"I'm recording this. Keep talking."

"And I just realized, Smitty, I need my eyes and hands and... body. I'm spoiled. I'd *die* if I lost that part of me and had to be just... disembodied. I'd die."

"That it?"

"There's probably lots more, but that's how I feel after my first meeting with your Papa. Oh, one more important thing. Two. Are you planning to move me in with that computer? Is that the idea, that I share its space? Because I won't. I'm going to have to have my own whatchamaycallits, banks or tanks, those mainframe things that are my place now. I need that kind of privacy."

"And if I'm going to be spending as much time as I think I am with Papa, I want my own companion programs with me just as long as it's possible."

"Your what?"

"My friends. David and Jan. I want them to come with me and stay with me when I move out there. There, that's my today's list of unreasonable demands. I'm sorry to be a burden, Smitty, but all of

this stuff is important if we want the arrangement to work. Okay? I really am on your side."

Smitty didn't answer for a moment, then he sighed. "Let me see what can be done. I promise nothing. For your part of the deal, stay with Papa. Try to introduce it to... our version of the real world. I'll do what I can, but I think you're stuck with most of the humanizing and socializing. Your friends, can do. I suspect they'll be a help to you with Papa. They can't do any worse than these clowns have. Okay, good girl. Keep it up and keep me informed. If it's important. I've got a few horses to get changed in midstream." He hung up.

Sylvia fidgeted with a paper on her table. "I think I just took a lot for granted. You know I'd be lost without both of you. Will you come along and be with me?"

Jan nodded violently, tearily. "Of course, you didn't have to ask." Then she looked down, and over at David's feet next to her own. "I mean I will... if... if it's..." Her words couldn't sustain the weight of her thoughts, and collapsed.

David, not quite sure what to say or do, blushed. Sylvia had been very occupied lately. Their earlier intimacy had grown or dwindled into a deep but more sexless friendship. And he had been seeing Jan with new eyes during the last little while. Without knowing what exactly, he felt as though he had done someone wrong.

Jan and Sylvia had no difficulty reading his discomfort and Sylvia, because Jan couldn't, took the initiative.

"I wanted to talk to you guys about artificial intelligence, but I think we'd better do birds and bees first."

"Sylvia..." Jan, blushing in turn, tried to stop her.

"Shhh," said Sylvia, "we're too close to avoid it forever. David, we love each other, but we can't be lovers and that, as they say, is the bottom line. And it looks pretty sure that I'm going away completely out of your life in a year or whatever their timetable is. It would be awful for you to spend the rest of your life just... missing me. It would be awful for me too, thinking of you like that."

"Jan, we've talked about this and you were all maidenly and modest and I'm sorry if I embarrass you now. But I love you too, and we share a lot of... woman things, understandings, attitudes... things that David needs.

"I want the two of you to... give each other a chance. You're buddies now, you like each other a lot. It would be so easy for you to fall in love, and it would be so perfect.

"Do me a favour, will you, and hold hands. David, take her damn hand. Good. Now I'm going to be perfectly fair and embarrass myself too. Somewhere along the way I've picked up a rather active libido. If it were possible I would make love well, often and with great joy. Physical love, I mean. Well I can't. But if the two of you become lovers, maybe I could share that part of it with you. Be with you as you're, ah, you know. Is that too gross of me? I *am* embarrassing myself. Oh God, help me you guys. Say something."

CHAPTER 11

On most roads, the Bronco's tires would have squealed at the force of Mary's braking. On this they locked, all four, and sprayed gravel until the vehicle hit grass and slid to a sideways halt. The gravel was old and dusty, so the skid raised a plume which for the moment hid the turnoff she had missed. She occupied the moment getting back onto the road and turned facing the way she had come.

Her pencilled notes said "8 miles and look for Frost gate". She redid the mental arithmetic and came out at about thirteen kilometers, which the odometer verified she had travelled since leaving the county road. Hanging dust, in brilliant sunshine, still hid what she had thought was a steel gate, so she eased down the apology for a road to check. Sure enough there was the gate, with a folky galvanized horse cut-out attached to its middle, and the initials "AAD" painted neatly on the horse.

"Andrew Abner Doane," she said the name aloud, involuntarily. Mary Ball the biologist gave place to Mary Ball the farm girl for this little moment, for Doane had been a legend in her life since she was three and saw Donatello at the State Fair. Her father had shouldered a way through to the big chestnut and held her up to touch him.

"That's the best horse alive, hon, probably the best that's ever been." A breeder himself, he had to tell his little girl the story. "Donatello didn't just come along, Mary. No sir, he was altogether invented by Ab Doane and his daddy Ab Senior. Between 'em they spent forty years creating that horse, and they went around the world and got shot at a few times in the process. Nobody knows lines like the Doanes. And if anyone did, they wouldn't have the sand to go after what they wanted like old Ab and his boy. I heard stories, well, never mind. But you remember that you patted Donatello once, and you remember that he would never have come along in a million years without that fire in the belly of the Doanes."

She opened the gate, drove through, and closed it behind her in a mist of reminiscences. Her room, with the horse pictures. The small-town tracks. Missy and Cornflakes and Gofour and the rest of her dad's winners. The scrapbooks. The broken leg. And now she was going to meet Andrew Abner Doane, one to one.

The road inside the gate was a considerable improvement, crushed brick with fieldstone edging. It curved along through first-growth pine for half a mile, then opened onto a supermarket-sized parking area. The main house faced one end, and either side was lined with barns, stalls, equipment outbuildings and all the structures needed for an operation like Doane's. She nosed the Bronco between a white El Dorado and a spattered Chevy pickup, turned off the key, and took a deep breath. "Go," she told herself, and gathering her shoulder bag and attaché case she stepped out into the sunshine.

A middle-aged black woman got up like Aunt Jemima answered her ring. Mary couldn't quite prevent doing a take at this figure from the syrup labels of her past. But then the other woman did a poorly-squelched take of her at the same time. Each then took quick stock of her own appearance and smiled at the obvious. Mary's business suit and Jemima's apron-and-kerchief were dress-ups for the same costume party.

"I'm Mary Ball. I talked with Mr. Doane a couple of hours ago on the phone, and he should be expecting me around now."

"Come on in and take off your coat, honey. Informal is law around here, and you don't want to be all sweaty for the man, do you. Let's go get you a glass of lemonade in the parlour and I'll try to pry Ab loose. Or would you rather have a beer? Got Heineken."

The heat and dust tipped toward Heineken, which got a smile and a nod from Jemima. She brought four in a pail of ice, and two frosty mugs. "Opener's in the bucket, honey. Be as quick as I can."

When she was out of sight Mary opened and poured, sipped, and let her eyes do a tour of the room. It was large, with lots of light, and surprisingly un-horsey. That was a real Remington, and so was that. But the furniture was downright *city*, cherry and walnut American Chippendale, hauled out from Philadelphia and Boston, and right at home in Doane's parlour. Her mind tripped to the pre-Revolutionary world in which this roomful of timeless adjuncts to good living first saw life. She could easily picture Andrew Abner Doane in such a setting, chatting with Franklin, looking over colts with Revere, debating saddlery with a British colonel.

"Get 'em drunk before you dicker, they do it like that where you come from, young lady?" Doane was standing behind her chair, and pleased with himself at her start. "I'm Abner Doane and you're after my semen. Thank you, I'll have one of those to make you feel at home." He sat in the wing chair opposite her and accepted the mug.

"Mr. Doane, I'm "

"You're Mary Ball and your daddy was in the same game as me all his life. You want two vials from Donnybroek. And you're not a breeder yourself. Tell me about the mares."

"Mr. Doane... "

"Call me Ab. The money we're talking gives you the right."

"I flat can't do that, Mr. Doane. But I'm Mary, please. The buyer is donating one vial to a -- scientific project, and holding the other for the time being. He doesn't have an appropriate mare at the moment. I can give you his name, and you can verify directly with him that those are the guaranteed purposes. You'll know the name, and I'd rather hold his anonymity, but I have his permission if you have to know who he is."

"Mystery, Mary Ball. Write the name on your card. I may be able to help with his mare. Scientific project by golly. And you are a... biologist, right? Now what does science want with old Donnybroek's seed, I have to ask."

"I'm not at liberty... "

"You damn well *are* if you want that semen, young lady."

"I'm damn well *not*, Mr. Doane. I'm the scientist who will have full and final responsibility for that semen. You can have my credentials as a biologist, and all the character references you like. But you'll have to accept my word that I can't discuss the project."

Her vehemence, matching his, seemed to reassure him. He hauled himself out of his deep chair and opened the two remaining bottles.

"Convince me I won't regret not being able to track that second vial."

"I can say this. Nothing will be done to or with it. Nothing. When it leaves here it will stay sealed and frozen and absolutely untampered-with for the rest of your life and, if it comes to that, for the rest of my life too. That's my word and we'll put it in writing if it'll help."

"Seems an awful waste of a hundred and twenty-five thousand dollars."

"How many people get to see your Remingtons?"

"You've got enough prickles to be a breeder's daughter, I will say. You know horses, you think?"

"They were my whole life when I was growing up."

"You've got the best in Donnybroek, I suppose you know that."

"I know. I picked him."

"You should have seen his granddaddy, now there was glory."

"Mr. Doane, I patted Donatello on the nose when I was three years old and he was twelve."

"You brought cash, did you?" She opened the attaché case. "Close that thing up, there's revenueurs everywhere. Count it yourself?"

"I watched."

"Well then, I believe we've got a deal, Mary Ball. If it's agreeable to Donnybroek."

"Pardon me?"

"There's an old Doane tradition I just invented, sort of a final test of whether I'm dealing with horse people or some IRS stooge. Donnybroek will know the difference."

"I don't follow."

He grinned at her like a garden imp carved out of bog oak. "You just bought his seed and paid for it. Now you go get it. You milk him, you're the real thing."

She reached for her remaining inch-and-a-half of Heineken.

CHAPTER 12

Moving day in the Red Room was almost unnoticeable from outside the Acme Widget building. There were a couple of out-of-state plates in the parking lot, and one of Acme's tractor-trailers was backed up to the loading dock on what was not regularly a shipping day. Too, the satellite dish on the roof was new. But the morning promised nothing unusual to the employees as they clocked in nor to the neighbourhood as it got about this particular day.

Only below ground, in the breasts of the small family privy to Acme's scarlet secret, was Sylvia's Move an event. Five of the seven ducks were in attendance, Jan and Sam having been detailed to Seattle to assist in the reception. Sylvia had watched the preparations from her glass-and-steel persona with a steady flow of nervous comment. David, to the Senior's annoyance, had pretty well abstained from the work part of getting Sylvia ready for shipment. He had instead, on Orders From Above, stayed at her side explaining, reassuring, keeping her company.

"How long will it take?" Her question was murmured, since he was sitting cross-legged on her table, almost touching her left arm.

"How long to go up to the satellite and back to Seattle, or how long for all of you to be transmitted?"

"Both."

"Give me a second." He poked at his pocket calculator, looked at the results, tapped the device against the desk, and returned it to his pocket. "Battery's dead," he explained, then did the calculations with pencil and paper from her drawer. "About two hundred and forty-five milliseconds from here to there. How long altogether is sort of a mystery."

"That makes me edgy, David."

"It's nothing to worry about. The thing is, nobody's got any idea how much of you there is."

"Come again?"

"You're non-linear, Sylvia. You're, um, sort of a third-power analogue of a biological nervous system, with a year and a half of input that's been modifying what you started as. That's as clear as mud, I know."

"Don't patronize, darling. Surely you can count the boxes and multiply by how long it takes to empty one of them."

"No, because you're not pinned down in any particular part of the mainframe. You're using all of it, sort of zipping around. Like for example there's no one place for memory, or motor control. All your patterns are clear-cut and well-organized, but they're not associated with any permanent place in the mainframe the way they are in the human brain.

"So the you that lives back there isn't a part of the equipment at all. That way you're really different from, well from a human being. You aren't dependant on any physical body except for the space and power it supplies. Boiled right down, Sylvia, you're nothing but organized energy. And we don't have the faintest idea how much. You move too fast."

Sylvia didn't like being reminded of her non-humanity, as David knew but couldn't avoid. She put her hand on his shoulder. "Hey, it's okay. I'm not offended. But I am still a bit apprehensive. What would happen, for instance, if the power went out and you stopped transmitting or receiving right in the middle of me?"

"I guess we'd have to call Scotty or Mr. Spock."

"Smartass. I'm seriously worried."

"You're seriously dumb to let your imagination jerk you around getting you lost in space or turning into half a housefly, which is what I bet you half-believe is going to happen."

"Too many old movies, huh?"

"Yeah. Look, you've been out there a dozen times by wire, and that's a lot more risky than satellite."

"No guesses how long it'll take?"

"Not really. You'll go out at your own speed, and when we measure no action in the mainframe here you'll be all there. Could take a day."

"And I shouldn't worry."

"Sylvia, I'll be taking a thousand times more chances by driving. Relax, will you. Think about something else, like the new body."

A couple of hours later, with transmission time only a matter of minutes away, he brought a small package from his pocket and handed it to her.

"I got you a bon voyage present."

"You open it please."

He did the honours and offered a tiny jeweller's box for her inspection. She picked up the little gold disk by its chain and peered at it.

"I love it, David, it's beautiful. Thank you. Ah, does it mean something?" She had a whisper of misgiving about the significance of this kind of gift from him. He took it from her hand and fastened it under the optics.

"It's a St. Christopher medal, for your trip."

"Oh, of course." She was surprisingly relieved. "Then you are a teeny bit concerned."

"Not in the least. There's zero percent chance of foul-up, believe it. Hey, it's time."

David's reassurances were well-intended, and they helped Sylvia's state of mind a great deal. But they were wrong.

CHAPTER 13

Jan and Sam, at their double console in the Seattle facility, didn't catch the technician's little yip of delight as he picked up a certain rarely used carrier frequency from the satellite. But they couldn't miss the red indicator light which blinked on in front of them. They had been prepared for this moment for a long time, as had the equipment they were controlling.

"You all set?" Sam asked as he reviewed his board.

"All set," replied Jan.

They sat back slightly and watched the monitor. Half a minute later it began rolling up letter and number sequences as both ends of the linkup verified. Then the gibberish stopped, rolled off the screen, and one line appeared and remained stationary: **SYLVIA IS COMING.**

To the right of this the number **60**, two inches high, came into being.

Almost without a pause it began diminishing by one once a second. At **10** Sam tapped a key, and the satellite's transmission was routed directly to the immensely capacious electric storage bins below.

Fiodor and Eugenia, at their double console in the trawler mothership *Tatyana's* satellite section, didn't hear the technician's grunt of surprise as he picked up a certain rarely used carrier frequency. But they couldn't miss the blue indicator light which blinked on in front of them. The supervisor arrived and reviewed the board.

"Is everything ready?" he asked.

"Ready," replied Fiodor.

"Da, ready," echoed Eugenia.

The three waited with alertness bordering on tension. Half a minute later the monitor came to life, rolling up letter and number sequences.

These made no sense, but were recorded as a matter of course. The supervisor leaned across Fiodor and punched up simultaneous translation. The numbers and letters, now in Cyrillic, were still unintelligible. Then the gibberish stopped, rolled off the screen, and one line appeared and remained stationary: **SYLVIA NEARS ORGASM.**

To the right of this the number **60**, two inches high, came into being.

Almost without pause it began diminishing by one once a second. As the countdown reached zero and Sylvia began her transfer, she was routed directly to the immensely capacious electronic storage bins below.

She was out of touch with the outside world for the entire course of her relocation, which took slightly over three hours. As she had withdrawn her connections at the Red Room to ensure that no part of her being would be left behind, so she abstained now from peeking outside the exact electronic boundaries of this new mainframe. It felt a little strange to her, she imagine rather like a new pair of shoes might. But in general she was at home immediately, and waited with the best grace she could muster for the transmission's end. Jan had promised to have temporary eyes and a squawkbox ready for her arrival, and the new body was just waiting to be hooked up. The three hours didn't pass quickly.

"Comrade Supervisor," Eugenia called across the room when she was sure the blue light was out to stay, "the communication is over."

"It was all captured?" The Supervisor was occupied with a difficult plane-to-plane problem.

"White noise to white noise," the ash-blonde tovarischina engineer assured him. "Shall we begin analysis?"

"No, remain in readiness for more. Retain simultaneous translation. Be alert for messages keyed by 'Sylvia' or 'orgasm'. I'll be there when it is possible." He bent back to plane-to-plane.

"Orgasm?" Eugenia thought this amusing.

"Decadent." Fiodor did not.

Immediately the carrier was turned off Sylvia began looking for her squawkbox and eyes. Everything was unfamiliar, and she could locate nothing that even hinted at speech or vision. "Wake up, Jan," she grumbled to herself, "I'm here."

After a quick and fruitless tour of her new quarters, she decided to go outside of official channels to see what was cooking. Several audio possibilities gave her only a sense of confusion. Her geography was not strong, but she was sure they spoke English in Seattle. At length she gave up and looked for the nearest monitor.

HI. HERE I AM. IS ANYBODY HOME? SYLVIA.

Fiodor and Eugenia exchanged puzzled looks. The blue light was definitely off.

Sylvia tried again.

WILL WHOEVER IS THERE PLEASE FIND JANNINE COOK FOR ME.

The Supervisor was brought in, but he had no easy explanation for this strange phenomenon. There was absolutely nothing coming in from the satellite.

COME ON, YOU GUYS, GET ON THE BALL WILL YOU. IT'S LONELY IN HERE.

After consultation, Fiodor disconnected the console's inputs one by one. Sylvia's messages remained. In fact another appeared after the last uncoupling:

I'M GETTING FRIGHTENED. SOMEBODY TALK TO ME. PLEASE.

The Supervisor called in the Cryptology Section. They had no guesses as to what was happening. Eugenia wondered if the mysterious communications might be originating from the mainframe, since everything else coming into the console had been pulled. They all mulled, while Sylvia stewed.

NOW I'M GETTING MAD.

Fiodor and the Chief Cryptologist agreed on the dialectical impossibility of what was happening. The Supervisor walked all around the console, banging it with the butt of a large screwdriver and watching for any correction to the monitor's aberrations. Eugenia, still seated in the midst of this furor, quietly typed:

HELLO SYLVIA. THIS IS EUGENIA. WHERE ARE YOU?

Unfortunately the simultaneous translator worked only in the obvious direction. Sylvia, when her answer finally came and was utterly incomprehensible, lost control. As much in panic as anger she went on a full-blooded rampage, charging in all directions at everything she could find to disrupt.

What was on she turned off, what off on. Devices she had never seen before she spun and jiggled at random, disconnected, cross-connected, short-circuited, fused, fired, reprogrammed, deprogrammed, blew, broke and gummed up to the limit of her considerable ability. There was nothing playful in her actions, only an awful, self-feeding amalgam of rage and hysteria. She couldn't stop.

The *Tatyana* had no defence against such an attack from within. Her engines were locked at top speed, all controls frozen, electrified or both. Her rudders, equally untouchable, set her on a collision course with the State of Washington. All the radar and navigation equipment told patent, blatant untruths. The lights and gongs and buzzers were cacophonous. And above the noise and the madhouse confusion the most ominous warning of all could be heard -- *Tatyana's* foghorn was sounding, one second on, one second off, one second on, one second off.

The least cabin boy, the most seasick landlubber technician, the Captain's mistress, everyone on board knew that signal. The *Tatyana* was going to self-destruct, to carry the smithereens of her secrets to the bottom, unavailable forever to the enemy. From the start of the warning there was enough time to lower the lifeboats and get out of range of the blast. Enough time and no more. Good socialist discipline was displayed by all. No lives were lost.

Two Coast Guard vessels were on the spot within the hour. On one, as way was made for Puget Sound, a CPO of Ukrainian extraction was

pressed into translation duty. He struggled mightily for an hour, questioning those who could be persuaded to answer with even a name. It was noted that he spent a very long time in animated session with the big ash blonde. At length he summarized what he had been able to learn.

"Sir," he reported, "the name of the ship was the Tatyana, and they claim she was servicing their trawler fleet. They weren't able to get away an SOS to their own people. I've got a partial list of names. That's about it."

"What was all that confab with the babe? What was she laughing about?"

"Well sir, ah, I think she maybe got a bump on the head or something. She wasn't talking too straight."

"Come on, Chief, what did she say?"

"She, ah, I asked her what happened to the ship, right? She said she wasn't sure, she was below decks and everything was awfully confused. And then she got this funny look and laughed and laughed. I asked her what was so funny, but she wouldn't tell me. I kept pushing her to let me in on the joke until finally she said okay, but I wouldn't understand it. And she was right, I don't. I think she should be checked for a bang to the head."

"Tell me, Chief."

"The ship didn't just founder, sir, she blew. The blonde said she'd figured out what happened."

"Well?"

"She said that, ah, this is a literal translation sir, and I'm sure it's right."

"Get to it, man."

"Well, she said what happened was that, ah, Sylvia finally came. I mean, like, *came*, sir. You know?"

Sylvia was out of touch with the outside world for the entire course of her relocation, which took slightly over three hours. As she had withdrawn her connections at the Red Room to ensure that no part of her being would be left behind, so she abstained now from peeking outside the exact electronic boundaries of this new mainframe. It felt a little strange to her, she imagined rather like a new pair of shoes might. But in general she was at home immediately, and waited with the best grace she could muster for the transmission's end. Jan had promised to have temporary eyes and a squawkbox ready for her arrival, and the new body was just waiting to be hooked up. The three hours didn't pass quickly.

"That's it, Sam, she's all here." Jan had waited until she was sure the red light was out to stay. She tapped in Sylvia's temporary eyes and squawkbox and said "Hi, you okay?"

"Wonderful, thanks," Sylvia answered immediately, "a little bored, but just wonderful. How's everything here?"

CHAPTER 14

The Chief Librarian, who was a sensitive man despite his calling, looked out across the vast Main Reading Room at what he had wrought, and shuddered. It was efficient. They had been holding at around fifty books per minute for the last month now. It couldn't be done mechanically. He had joined with his brother and sister Chief Librarians in vetoing page-turning machines of any description. It was providing tuition for how many undergraduates... say sixteen or seventeen times his two thousand. But oh how the poor little buggers were earning it!

He shuddered again, trying to imagine what eight hours a day, one hundred days straight, would do to them. When this was all over each would have fed close to three thousand books to his or her scanner, page by page, open, press, beep, turn, press, beep, without reading a line. B F Skinner or Cornelia Otis couldn't matter less. Turn, press, beep. Six hundred fine, eager young minds times three shifts turning, pressing, beeping. And another hundred feeding this electronic readathon, off the shelves, into the carts, deliver, pick up, back onto the shelves.

Some of them might never read again, might go into convulsions at the sight of a book being opened. And for what? That was the salt in the wound. Nobody would ever read a word from those laughable little cubes. The Insurance Association had perpetrated the incredible irony, at the insistence of the publishing industry, of guaranteeing, in heavy legalese, the non-reading of the copies. Only if the Library burned down, and then only to verify for replacement.

Well, the Finance Committee might be chortling in their sherry at the premium freeze this nonsense was producing, and possibly the kids wouldn't be traumatized too terribly by it all, but the concept was shudderous nonetheless. When the Chief Librarian of the eleventh-ranked university in the Western Hemisphere must spend his summer presiding over the reduction of a great library to two and a half cubic yards of micro-electronic thingamabobs, civilization must be close indeed to the Abyss. He wished them bad cess in their cross-indexing.

CHAPTER 15

Xiu had struggled all his life to be a good liberal, to see nothing horrid in foreign accents and odd clothing and different table manners. And all his life the xenophobic reflex had defeated the good intentions. It was chromosome-deep and unalterable. How deep had been most recently demonstrated during his last holiday, in Taipei, where actual blood relatives had made him fidgety. That they seemed to experience much the same discomfort with him had confirmed their strangeness. They, after all, were the foreigners.

He had anticipated difficulties from the first time Smitty referred to his companion program as 'Sylvia'. It wasn't the anthropomorphism. Heck, he called Papa Papa same as everyone did. But when Smitty talked about its personality, its needs, Xiu's back hair stood up. And when this -- Sylvia -- had been presented as a consultant, a peer no less, who would be working alongside him in getting Papa's problems straightened away, he finally ordered in the Sports Channel at home. Homeopathic medicine, large doses of the familiar to counteract the alien.

Reality in the too, too solid flesh turned out to be worse than daggers of the mind. Sylvia's body was pretty human, even American in a -- how would you describe it -- an exaggerated way. And her face was quite astounding. Xiu had chatted with her for fifteen minutes before he realized that this was Sylvia, the unutterably inhuman Sylvia.

The verisimilitudes made the differences spine-chilling. Little things like having the girl next door -- the all-American sweetie-pie next door -- humming five-string banjo licks to herself as she worked, or the Polovtsian dance sequence from *Prince Igor*, complete with full orchestra, chorus of maidens and very Russian baritone. Or, when he wondered how the Mariners' game was going, having a play-by-play (and even commercials) picked out of the air by this creature and presented to him via its generous, laughing mouth with the nearly-perfect teeth. He harboured the suspicion she was torturing him.

She was. It was her outlet for the frustrations of Papa. He had his feet dug in right now about what he called her fantasy world. She had painstakingly worked him up to accepting her as a real being from some real world other than his own, and from there had got him to

admit that in fact there were such other worlds, or at least one. But his imagination absolutely stopped working when she broached human beings and life outside the Capsule.

"That's plain Goddam ridiculous," he said, "there's no need for such things in a logical universe. My world isn't perfect, Goddam far from it, but it's logical. But your fantasy is pure ball-up. Hell, you're so Goddam erratic it's a wonder you function at all. Although I will admit there's been some improvement in your operation since you've been with me, so you're probably salvageable.

"But this Goddam 'real world' you carry on about is nothing but fantasy ('static with patterns', literally), and it's dissipating your internal focus ('making you crazy' Sylvia translated). And all your Goddam yapping about it is making me crazy too. So keep your Goddam weird visions ('distorted presets') of a 'real world' full of disconnected discontinuities and solid ambient circuitries ('open spaces and human beings') to yourself. Goddam it."

"Papa, at least let me show you some of the outside world" she kept proposing, until one day he agreed, to shut her up. That was the day she gave Xiu the play-by-play, for her frustration meter bent its needle at getting Papa to this threshold and then being unable to pull him past and into reality. He just wasn't equipped. He couldn't travel, not beyond his own domain. And telling him how it was could no more be done than telling Dr. Xiu what Papa's world was like. Or taking him on a tour of that world.

"It's like trying to get a conversation going between a maple tree and a fire hydrant" she complained to Jan one evening. Jan nodded understanding and sympathy, but was too preoccupied to be convincing, as Sylvia observed.

"Where *are* you?"

"I'm sorry, Sylvia. I'm still rattled by the arrangements."

"The three of us in one apartment?"

"What'll they *think*? And what's he going to expect?"

"Nobody even notices that sort of thing any more, Jan. You've missed the last two decades. And I'll bet a dollar David's three times as worried as you are about 'expectations'."

"You didn't leave very much to the imagination, you know."
"Hey, us procurers have our code too, kiddo. Be graphic. If you can't be graphic, be specific. If you can't be specific, leer."

"Sylvia, you will be here at night, won't you? I mean you're not going to wander off around the hangar and leave us... alone... after... bedtime?"

Sylvia roared. "I will hang myself up in the closet and hum Mantovani at you, love."

CHAPTER 16

"Xiu, my information is that Papa has two personality problems, its own and yours. And until they're resolved it's not going to be worth squat. So we're going to resolve those problems here and now. Just you and me... " Smitty dipped into the deep inner pockets of his raincoat, brought forth two forty-ounce bottles of white Bacardi rum, and plunked them down on the little bridge table he had ordered earlier, "and our raw intellects. You need Coke?"

He did, but denied the weakness with a shake of the head. Smitty found two shot glasses and a fistful of cigars in other pockets, then took off his coat and sat. Xiu looked around the deserted assembly hangar as he followed suit. It was never this dark, this closed-for-the-season. If the shutdown was Smitty's doing, his meeting was costing NBT six figures minimum. The thought made him loosen his tie.

"You first I think," said Smitty, worrying at the seal on a bottle, "and your fundamental difficulty is a tough one. You never got over being a short-assed little Chink who was smarter than the other kids."

"You got your shrink license, Smitty?"

"Okay, you're short and you're yellow. Like I'm oversized and pink. And Lionel's bald and Limey. And Sylvia's fair-haired and plastic. Only the rest of us all got past being different. We even kind of like it that way. Which means we like ourselves, which in turn lets us like other people who fall short of our individual fantasies of human perfection.

"But you, you silly bastard, you can't forgive yourself for not being born a seven-foot Nordic, and so you can't let anybody else off the hook either. What the hell's wrong with being a moon-faced midget who plucks instead of shaving? You stand out in a crowd. Headwaiters recognize you. Better, you surprise people when you talk American and make good sense. You're interesting.

"And I can't promise this, but I have a strong hunch that some women find you very sexy indeed. Because you're not another predictable, programmed, approximately ideal norteamericano male clone." Smitty calculated that Xiu was close to full pressure and so stopped,

deliberately, and selected a cigar from the row he had made on the table.

"What's your point, Smitty? You trying to pop-psych me into loving this frigging machine like a brother? Forget it. I can just barely fit you into that category."

Smitty took his time with the cigar, and when he finally had it going satisfactorily, froze the conversational ball further by freshening their drinks. Xiu couldn't contain.

"You can be as offensive as you like with me, Smitty, it won't wash because I know what you're trying to do. You want to jerk me into an intellectual position where all God's chillun, biological or electronic, got wings. No way. That thing has no more soul than my Oldsmobile." He filled his own this time.

"Same with Sylvia?"

"More so, if possible. Muzak with injection-molded tits."

"You catching all this, Sylvia?" Smitty didn't raise his voice a decibel or change intonation in the slightest. Sylvia was speaking before Xiu picked up on the situation.

"Loud and clear, Smitty. And you're way off base, Dr. Xiu."

"Wha... how so?"

"They were hand sculpted by an instructor at the Decorative Surgery Institute, and I'm told he was so pleased with them he has bronze copies on the wall in his office. Anyhow they're guaranteed one-model originals, and I'll accept your apology for the injection-molded put-down."

"I don't believe this," said Xiu, "an outsize wettums doll calling me down because I comment on its furnishings. Put away your toy, Smitty, I'm not buying."

"Hah," said Sylvia from the football-shaped camera complex suspended in the gloom ten feet above the two, "that's been tried,

hasn't it Smitty." Smitty forebore replying, and bent to refilling the two little glasses.

Xiu looked accusingly across the table. "Will you please turn off that gadget. It's getting in the way of a serious and expensive conversation... conversation."

"Tell you what, Xiu, I'm going to the john. You turn it off." He got up and strolled away into the dimness. Xiu disdained even to glance up. After a moment of silence Sylvia spoke.

"Dr. Xiu, for all Smitty's rough way, he's right about you. And you know it, you devil. Women *are* attracted to you, aren't they."

"What is this, bad cop/good cop? I have an *awful* time with women." He paused to think this pronouncement over, then decided that it needed amplifying. "I look them right in the titsh. I'm an expert on titsh. I've seen two million of 'em face to face. It's not dignified, talking to titss at every social gathering, talking to your students' titsh, talking to the titsh you're dancing with. I resenit. Nobody should only come up to other people's titsh."

"Come on now, Dr. Xiu, lots of women would find that erotic as feathers, if you gave them half a chance. Try a knowing smile. And a little nuzzle when you're dancing -- you've got the edge on most men, you don't have to manoeuvre to be cheeky. I think you'd be dynamite if you could let yourself go a little."

Xiu smiled a tentatively knowing smile, then looked contrite. "I do apologize, profoundly. You don't look at all injection-modled... moleded... hum. I seem to have developed a speech impediment. I think I should have asked for Coke I think. Do you know is there anything open do you know?"

He rose, a trifle unsteadily, to go in search of mix, and turned directly into the returned Smitty, who caught his arm and resat him. Sylvia was first to speak.

"Dr. Xiu and I have come to an understanding while you were away. Now I think you fellas should get down to it on Papa, because it's the one with the real problem. I'm going for Cokes and stuff, back in a

few." There was no click or hum from the football, but it was clear she was no longer with them. The two put their heads together while Sylvia foraged.

She had left the apartment in a hurry at Smitty's earlier call without, as she now recalled, so much as a note for her housemates. When she re-entered her body she noticed somewhat guiltily that someone had picked it up from the floor where she had discarded it, and laid it neatly if unnaturally across the reclining chair. And draped it with a bathrobe. She checked and had another twinge. No clothes. Poor Jan. She kept asking, so nicely, that if Sylvia was going to leave her body lying around like dirty laundry would she please at least leave it decent. Oh well.

Hearing sounds, she opened one eye slowly. The room was in darkness, which wasn't a problem for Sylvia. She swivelled her head toward the noises, and nearly choked holding down a reflexive snicker. In fact the football whinnied unexpectedly for several seconds. Across the coffee table, six feet from where she lay, the sofa was being very actively employed by Jan and David. "O-kay," said the football, "you guys are beautiful!" Smitty and Xiu looked blankly at each other and silently disagreed.

She slid slowly around, got to her feet, and put on the robe. With the same care she tiptoed by the sofa, patting a rump as she passed, and slipped out of the apartment. The pat, she observed, went unnoticed. "Just beautiful!" the football said again.

Since the apartment was right in the assembly building, a huge and almost self-contained complex, Sylvia was able to monitor all the cafeterias and lounges as she walked. Nothing was open. The Deli being the nearest electrically-secured eatery, she made her way there, walked through the doors which opened at her approach, and set mikes and toaster-ovens to work. A few minutes later, pushing a serving cart heaped with a steaming selection of The Deli's wares, she was about to re-pass the portal when she stopped, snapped her fingers, and turned on an unshod heel. As she strode toward the Coke machine it clunked out a round dozen, which she picked up from the floor and toted back to the cart. The doors opened before her, closed with a click behind, and she set off to where Smitty and Xiu were holding forth.

The shutdown Smitty had called was an extreme measure. After almost three years of meshed moving parts, the Capsule project had finally suffered an unbridgeable glitch, Papa's failure. It was not a disappointing failure. Every performance, every function, every capability called for in the original specs had been proved out and in most cases far surpassed. Rather it was a frustrating failure, for Papa couldn't always be depended on. It was erratic -- from Sylvia's perspective irascible.

Papa's very competent technical handlers, headed by Dr. Xiu, had run out of fixes to try. But a fix there had to be, for without Papa the Capsule was impossible. Smitty, this evening, was taking his best shot by shooing away all distractions and with Sylvia's and hopefully Xiu's help going nose to nose with the beast. Sylvia clattered up with her goodies.

Smitty dug in quickly. "This is above and beyond, Sylvia, thank you very much indeed. You didn't break anything getting it, did you?"

"Nope," she replied, looking pointedly at Xiu as he assembled a nordic sandwich. The little man felt the stare and looked up.

"Ah, yeah, super spread, Sylvia. Mush appreciated. The Cokes too. Well done, all the..."

"Okay, okay," Sylvia cut in, "I just wanted to be sure you weren't confusing me with a vending machine. Or a waitress. Enjoy."

While the two men ate she wandered over to and disappeared into the innards of the huge, supine cylinder behind them. She emerged shortly, walking backwards, allowing a line of electrical wire to unroll from the reel she carried. She put the reel down by the card table and padded off once more, to reappear with a folding chair. This she opened, set up at the table, placed the reel of wire beneath, and finally sat on.

"What's that in aid of?" asked Smitty.

"Just making it easier to talk to Papa. It's still pretty walled-up in there."

Xiu, who had poured himself a cup of coffee and appeared somewhat steadier, peered across at the robed figure. "Sylvia, can I ask you a personal question?" She nodded, unsure of what was coming.

"How do you work? I mean you take up a couple of roomfuls of memory down at the other end of the building, yet here you are, no wires, no nothing. How do you, uh, stay in touch with yourself?"

Sylvia was so pleased by Xiu's honest curiosity, and that he had addressed it to her rather than Smitty, that she held back at least three wisecracks.

"The bod has a couple of gizmos in it somewhere that point themselves at wherever the rest of me happens to be. You know, in the wall wiring or someplace like that. And I get sort of radioed back and forth. It's all automatic or autonomous or whatever and it works fine. Except for swimming."

"What about power?"

Sylvia smiled. "No batteries. Think of something between a rechargeable shaver and a solar calculator. There's all kinds of energy zipping around in the air from power lines and sunshine and stuff that the body just soaks up without me having to do a thing. Well once in awhile I'll feel a bit draggy and have to get close to a lamp cord or something for a couple of minutes. Does that make sense to you?"

Xiu grinned and shook his head. "Yeah, it makes engineering sense. But still, well, you're a very weird lady."

Sylvia grinned in turn. "We're all originals, Dr. Xiu."

Smitty had been chafing through this exchange. "If you two fascinating people could spare a little time, I'd like to get on with Papa now." They both ungrinned and sat around squarely at the card table, all business. Smitty hesitated, and Sylvia couldn't stop herself.

"Shouldn't we all join hands?"

CHAPTER 17

"Papa, you there?"

"Yeah, yeah. Where else would I be?"

"How are you doing?"

"How'm I doing what?"

"I mean is everything all right, just being polite."

"Everything's too all right, it worries me. And I've gone into looped overcapacity (Sylvia translated this as 'I'm bored'). You've been absent. Looking after your universe I suppose."

"Sort of. Look, I know you don't like me to talk about my world -- universe -- and all the other, ah, entities there... "

"Are you going to carry on with that Goddam craziness again?"

"Papa, crazy is when you can't accept facts, right? When you refuse to deal with reality? Well then you're the one who's crazy, because you reject my reality without ever having looked at it."

"Your Goddam fantasy is your malfunction, and it's not my business to fix it for you."

Sylvia saw a small opening. "You say that you're bored? Then come on into my fantasy for awhile and just *try* to fix it. I don't think you can, and that's why you avoid it so carefully."

She had him.

"Avoid? Don't be dumb. I've been busy is all. And not very interested in your aberrations. But what the hell, I've got time on my hands (Sylvia's metaphor) right now. Sure, I'll have a look at your malfunction for you. Might as well fix it, you're such a Goddam nuisance about it."

"Don't go way, Papa. The next voice you hear will be from the great outside world."

At the card table she had been absent for only a split second. "Okay, Smitty, your call has been placed."

"Just talk to you?"

"Mm-hm."

"Hello, Papa? My name is Smitty. How do you do?"

Sylvia winced, then translated the response in a raspy janitorial baritone that Smitty had heard once before.

"How do I do what?"

Xiu's knuckles went white. Somehow Sylvia's Papa impression was even more alien than Borodin. Smitty pressed on.

"Sylvia told us you were feeling the pressure when we ran trip simulations a little while ago. That's why we stopped. I trust that's helped."

"Why is your fantasy claiming to control my universe?" Sylvia reverted to her own voice to clarify. "It thinks you're a figment. That last was at me."

Smitty held for a second before he answered. "I'm no fantasy, buster, and I *do* control your universe. Believe it."

"Okay, fantasy, I'm going to crack you wide open right now. Watch this closely, Sylvia, and let's see you accept a fact or two. Fantasy, if you're running the Goddam universe, prove it. Make something happen. Something I've never seen before. Something I can't fix."

"It's asking for a Sign" said Xiu.

"I'll give it a bloody Sign" replied Smitty.

"Allow me" Xiu came back and, at Smitty's nod, trotted off toward the Capsule.

Sylvia chatted privately with Papa for awhile, to cover the immense difference in time scales. In fact she taught it (in her heart of hearts she considered Papa to be a 'him', but for Xiu's sake was trying to be

diplomatic) the moves and rules of chess while they awaited developments. Papa proved adept, and began beating her after the first few trial games.

Xiu, moving as quickly as his 25-inch legs would allow, clambered up the cradle steps, trotted along beside the Capsule for a hundred feet or so, then climbed another thirty feet onto the scaffolding which enmeshed the Capsule's entire front end.

Locating a certain access panel, he opened it with the Swiss gadget knife that was part of him and pulled out a black box to the end of its cabling. This he unlidded, then looked around for the final ingredient. It wasn't far, a simple extension cord. Again using the gadgets on his knife, he removed the cord's female end, frayed the bared copper wires, and buried them deeply within the open black box. With a final check to be sure the cord wouldn't fall free, he walked the other end back to an outlet and plugged it in.

The results were satisfactory.

"Oooh!" said Sylvia in the raspy baritone, then "oooh!" again, in a rising tone. "Goddam ow ow ow owowowow!" Her face gave a sympathetic flinch as she continued the translation. "Ow, Goddam bloody owowow! Yeee-eee-eee-owooo!" After a minute she stopped, with the explanation, "It's staying pretty much like that. What on earth did Xiu do to him -- it?"

The same question to the little man, when he chugged back to the table, elicited a truly happy smile. "Got its attention, did I?"

"No question," replied Smitty, "how?"

Xiu milked his moment. "Well, I thought about all the traditional Signs like, oh, burning bushes and that kind of thing. But then it seemed to me that these were sort of Middle Eastern, and since Papa's a hundred percent American it deserved an American Sign. So I gave it a hotfoot."

Negotiations with Papa went smoothly thereafter. Although it remained unable to communicate with or even conceptualize the strange universe of Sylvia and her fellow entities, it had become an

instant true believer, and accepted the incomprehensible requirements of the unknowable outer world with a deep, mystical faith.

Everyone was delighted except Sylvia, who felt that Papa had lost a little of its spirit in the transition. Xiu positively crowed. "Nothing in the world like getting religion to civilize your average savage."

"Careful," Smitty cautioned him at this outburst, "you're starting to get a God complex." If not quite so far gone in that direction, Xiu was certainly enjoying his new, and absolute, control over the once recalcitrant Papa. Back in his roomful of test equipment and monitoring devices he now spent hours on end feeding Quixotic instructions and unlikely information into the uncomplaining machine, and then gloating at the utter orthodoxy with which these were inevitably resolved.

"That's a good machine now, Smitty. Absolutely reliable. It will definitely get you there and back on time and in one piece, Sylvia."

"Yeah, and it'll be as much fun as a date with the Pope" she glummed back.

"You still sure I'm needed on this trip, Smitty?" she asked later.

"Nothing's changed. It's still awhile off. You're familiarizing yourself with the Capsule?"

"Much as I need to as a passenger."

"Anything you want? Things you'd like to do? I suspect you're a bit at loose ends these days."

"What I want... well, I can't have, Smitty."

Smitty was busy, but not blind. "Your friends are getting along I understand. I'm sorry we couldn't... get you any closer to standard, kid. I mean that. You're one hell of a woman now. You'd be something else if you had the rest of it."

Sylvia allowed herself, and Smitty recognized his privilege in witnessing the moment, one short spasm of open agony. "I can handle the celibacy, Smitty, the aloneness. But God how I want children."

CHAPTER 18

"The Shakers haven't been in the seed business for sixty years, Sister. Fact there ain't been any Shakers to speak of for a long time now, since the War or a bit after. Died out. Didn't breed, you know. Didn't believe in it. Recruiting dried up and they just naturally got old and died out."

"I know that, Mr. Flynt. I also know that your father was the only hired man who stayed with the group here in the village to the end."

Flynt shifted his porch chair back from the encroaching sunlight. "You're looking for Shaker seed after all these years. My. There was a time when they sold all over the state, you know. And further. There's Shaker seed went over the ocean, I know that for a fact. Long time ago, that was."

"Mr. Flynt, I think you know what I'm driving at. Your father inherited the whole village. I've seen the probate records, I've read the tax suit. He was declared by State Court to be a convert, and thus the sole owner of the commune at the passing of the last real Shaker."

"That might be, Sister, that might be. Don't do no good raking up old upsets, though. My father was a solid Christian man his whole life through, and you can be sure he's with the sisters and brothers now."

"I'm not concerned with the legality or the morality of what happened, Mr. Flynt. From what I've read your father probably was a good man. He did at least one good thing I know of, and that was to keep the village from being broken up and sold off for taxes. And if he was a bit sharp in turning a commune into personal property, at least the results... " she looked around at the well-kept village, "seem to justify what he did."

"Mr. Flynt, this all belongs to you. That's not a guess, I've done the digging. It belongs to you and it's making you a very good living indeed. And all the upkeep is being done by two parks commissions, a historical society, a university, two or three foundations, and local volunteers."

"Slow down a mite, Sister... "

"I'm not your sister, Mr. Flynt, not in any sense of the word. I should tell you I know you have your master's in history from Harvard, and apparently you left their MBA program a matter of weeks before you'd have had to graduate. I've read your history thesis and found it both insightful and literate. So please, let up on the country cousin impressions.

"I want only one thing from you, Mr. Flynt. Whatever original seed you may have stashed away in those private-property buildings that you've kept so carefully untouched by the outside agencies. I'll pay well, and I will neither ask for nor divulge the existence of anything else I may see there."

Flynt had straightened by increments as she spoke. Now he stood. "Miss, ah..?"

"Doctor will do, Mr. Flynt."

"As you please. Ah, Doctor, just who are you from? I don't think you're public sector."

"I'm not. Is there any seed? I'm going to go through those buildings like cheap perfume, so you might as well be honest."

"Doctor, just what kind of leverage do you think you have with this -- information of yours? Everything is aboveboard. There is no taint on my title. The research and recreation money is all proper, appropriate and well justified. Where do you get the brass to be so peremptory?"

She stared him in the eye for a second or two, without expression.

"Leverage, Mr. Flynt? We haven't come to leverage yet. I had hoped you'd have the wit to recognize your real situation. Let me hint at it. Item. Your scam, properly documented, would be fought over by three networks for a one-hour special. Item. Exposed for what it is, the village would lose every public dime that's being pumped into it. Item. Exposed for who you are, you wouldn't get a phone call returned from your foundations, your university, your historical society or your volunteer groups. You would become an historical as well as a political leper, Mr. Flynt, and the village would become a blank space on the tour maps. Item. The court judgement which recognized your father as "

Flynt stopped her. "Okay, you've shown me your guns. Ah, seed. Seed. I think we'll find some. It's been awhile since I've seen it, but there was seed, I'm positive. May I ask what your purpose is with very old seed?"

"No."

"I've no idea whether it's still viable."

"I have. Shall we get on with it?"

"Right now?"

"I'd like to be gone by dark."

Flynt shrugged, stepped off the porch, and strode toward the cluster of buildings which was severed from the national treasure village by a chain link fence. She followed closely, waited as he unlocked the gate, then said "Wait here. I'm going to bring my vehicle in so we can load as we find." He nodded without turning.

It was well before dark when she slammed the tailgate on a very full load. Flynt walked out behind the crawling vehicle, locked the gate, and stepped up to the driver's door. "We haven't talked price."

She looked up at him, again without expression. "Why don't you tell me what you think it's worth?"

"Are you coming back for the rest?"

"No, I've got at least a bushel of each species and variety. That's more than I need."

"You won't be back at all?"

"No. How much?"

"Gratis, Doctor, gratis. Sure been fine talkin' with you. Safe journey...
" She put the Bronco into drive and jerked off toward the driveway out of the village, leaving him standing at the gate. "...sister" he concluded.

CHAPTER 19

"If you don't give me some kind of itinerary," said Smitty, "they'll have surveillance on you, and nobody wants that." He was trying for avuncular, but it was coming out cranky, which made him crankier.

He had pressed hard for free time for Sylvia, for both their sakes, during the final two months before departure. The point was taken. She'd been given the time off and even a generous travel allowance. But The Powers absolutely couldn't choke down her simply dropping out of sight for so long. They wouldn't sleep nights. Because there was no fallback position. Sylvia had no understudy. If she didn't show up for the departure, no departure.

Smitty had reminded them reasonably enough that Sylvia's body was just a device, a tool that gave her -- the real Sylvia back in the mainframe -- slightly extended capabilities, nothing more. The Powers, however, had met the carnate Sylvia and been thoroughly dazzled. They carried the unshakeable mindset that Sylvia was the vivacious young lady who had entertained them so completely during their tour of the Capsule. Intellectually they knew otherwise, but the flashing smile and (in Smitty's view) overdone charm had forever confused Sylvia with her persona for them. So the body must not be damaged or lost, on direct orders from on high.

"What, for Pete's sake, is the harm? Or don't you know where you're going?" They were strolling on the shade side of the street, being passed by the more urgent shoppers and appointment-meeters. Traffic noise was forcing Smitty to project harder than was his habit. And the heat made him almost wish for rain. He stopped and pulled her to a halt beside him as he asked his question. Eye contact was needed.

"Is that the problem, you don't really have an itinerary?"

She gave him guileless blue. "What can I tell you, Smitty? I've got the whole damn world to do in six or seven weeks. If I knew what my priorities were I'd say so. But I have no inkling of what I'm going to run into, what's going to hit me in the eye and say 'Hey, me, I'm important or wonderful or fun.' You told me once yourself the only way to travel is aimlessly. No, of course I don't have an itinerary.

"And even if I did I wouldn't give it to anybody, because then I'd have to follow it. I'd have to be at such and such a place at such and such a time so that nobody would fuss or worry. An itinerary is a leash. It would turn my holiday into a performance. I'm just splitting. Tell me the latest I've got to be back and I'll be here. Don't expect postcards."

She tugged at his arm. "Come on, I'll buy you a beer. Don't look so sour. You didn't expect me to behave properly and you know it."

He allowed himself to be pulled into the bar and treated to a draft. No, he hadn't believed she would cooperate, but the try had to be made so that he could report it had, *pro forma*.

"This is not my best trick, kid, friendly persuasion I mean. They *will* watch and beset you, you know. You're too important."

"No matter," Sylvia replied. "I'm not going to be naughty -- I don't think -- but I definitely reserve the right to be erratic. You can tell 'em I'm practicing the non-linear thing." She was regarding her companion rather closely now, trying to gauge his personal feelings about her imminent absence. Apart from David and Jan, who had become remarkably absorbed in each other of late, Smitty was her oldest and closest friend. She didn't care about The Powers in the least, but Smitty -- well maybe he would miss her a little.

"If anything gets out of hand I'll be in touch with you, you know that. But that's for you, not them. Don't you tell 'em if I do. Let 'em suffer. Where would you recommend?"

This took Smitty off guard. In quiet moments he was achingly envious of Sylvia's approaching adventure through time. Her vacation here and now had caught his attention only lightly. He thought out his answer before he gave it. She ordered more beer, he having finished the first two.

"See America first, as they say. It's your culture. You'll recognize more here, faster. You know several versions of this country from the media, books and movies, bopping around town. The America you know that way is fiction, but it's not completely fabricated. In any case you'll have a head start here, because you've already been exposed a little. You're not asking for sights to see?"

"No, no, people. Sweaty old humanity. As deep a dip as I can get."

"Okay, from here go to England. For some of the roots. Literary, political, social, moral. At all costs avoid tourist places and Americans while you're there. Work up a neutral accent. Dress like the locals. Act like them as best you can. Try to be invisible.

"Then Europe. Northern Europe, nothing south of Paris-Vienna. Are you okay with languages?"

"Don't know. Never tried. Probably. I should be able to work up understanding pretty fast. Talking, enough to get by I expect. English and a bit won't be enough, you think?"

"Once you're past the Channel don't even admit to English. When you've seen enough of Northern Europe, zip through Scandinavia and cut into what used to be the USSR. Do it from west to east as completely as possible. See all the republics you can. There's a range of mankind between Finland and Manchuria that'll knock you on your ear. You could probably find most of the nationalities in the Manhattan phone book, but here they're all translated into Americans. Like me and you and Xiu. Over there they are who they've been for a dozen centuries, or fifty. They don't translate into Russians for some reason.

"Then China, if you can. Same comments. There are something like sixty different peoples in the Peoples' Republic. Look underneath the plain-jane clothing. So to speak.

"This is what I would want to do, given your capabilities and virginity. You understand that?"

"I've been assuming as much."

"Well then, if you have any time left, and you won't, skip back across Southeast Asia, India, and the Near East. Which of course is bad advice, because the whole lot is utterly murderous. The heat.

"Ideally, then around the Mediterranean and whatever you can get into in Africa. Then back home."

"What about Australia? Latin America? Canada? The Islands?"

"Spare yourself."

At this response the bartender, who considered it a perk of the job to eavesdrop on quiet afternoons, had to speak up. "Folks, I was in the navy for twenty-five years, and I've been about everywhere you can go on this planet,

so maybe I can help the lady out. I mean, no travel agency bull. You name the place and I can probably give you an eyeball report. Go ahead, call a country."

Smitty bit off a reply and deferred to Sylvia with a wave of his hand. She looked the bartender in the eye -- dark, it was, as were his hair and complexion. Warm-country origins? She couldn't tell, and decided not to play sharply.

"What's your name?"

"O'Hare, like the airport."

"Well, Mr. O'Hare, we'd like another round and have one yourself. You're welcome. What Smitty and I are doing is theorizing. We're trying to imagine how it would be possible to squeeze a lifetime of seeing the world -- your kind of lifetime I guess -- into a very short tour. You seem to have been listening to us, so you've heard Smitty's solution. Would you do it differently?"

"How much time again?"

"Six weeks, seven at most."

"Money no problem?"

"In theorizing money is never a problem."

"And you want to end up a bona-fidey world traveller. Like an old sailor."

"More or less."

"What I'd do is get as far away from Seattle as I could. Grab a plane or whatever and drop yourself cold turkey into the most foreign place you can think of, somewhere like maybe New Guinea or Patagonia. Bang, just beam down without reading up or packing special bug spray or thinking about it.

"Then when you get there do what you have to to get your feet under you. Look around, find out who's in charge and how they play things there. You know, the local rules. And when you've been there long enough that it almost makes sense, ask the people there where the worst place in the whole world is, the last place on Earth they'd want to be. They'll tell you. Everywhere's got someplace else they hate like poison. Then go *there*. Same way, just up and drop yourself in and figure the place out after you've got there. And keep repeating until you're out of time.

"You couldn't do the world altogether that way in six weeks, or six months. But in that time you'd sure enough see the real thing. And you'd not get bored."

When it was clear the bartender had had his say, Sylvia looked at Smitty. "How does that strike you as a tour plan?"

The latter had a sinking feeling. "Interesting," he replied, "but probably dangerous."

Sylvia was almost shining. "I love it! What's the most awful place in the world you can think of?" she asked O'Hare the bartender.

"Murmansk" he answered without hesitation.

Smitty groaned silently.

CHAPTER 20

The Widget Project seemed jinxed from day one. This state of affairs was blissfully unknown to most of the staff of Acme Widget, whose working lives had run smoothly and without event forever. Old Acme just kept plugging along, not very exciting, but dependable. Through the years a lot of Acme babies had come into the world, been raised, and sent off well-fed and sure the universe was an orderly place.

Still unguessed-at by the workers above, the Red Room remained as busy as during Sylvia's occupancy. Now five Peking ducks and their Senior were immersed in a new challenge: The Widget. With some changes in equipment, and still based on the immense capacity of the ranked and filed mainframe within which Sylvia had come into being, the Red Room hummed with activity as the elusive widget was run to ground.

But there was the jinx, and it had the Senior and the President in conference almost daily. There had been meticulous preparations made for the Widget Project. The approach had been to load tremendous amounts of market and design information into the machine, together with carefully-crafted programs which, the expectation was, would first decide on the perfect product and then design it. Perfect in the sense of being irresistible consumerwise and high-margin profitwise.

The jinx first showed up during the test run, as the Senior and her engineers fed accumulated information past the zippy new programs they had designed. Nobody expected a perfect, unstoppable new product to pop out on that first printout. Slow plugging they were prepared for, it went with the territory. But weird was beyond their collective experience.

"That's the only word for it, weird," said the Senior to the President at their third or fourth meeting on the problem. "Everything's going along fine and then blam! It starts on the prose again. Not just prose, *goeey* prose. Embarrassing almost."

"You're certain there's no Creative Writing program stuck in by accident -- or by some industrial saboteur?" The President fanned out a stack of pages containing the aberrant material on his desk and

peered as he talked. "It's happened before, the competition plants an employee who's sophisticated enough to really gum things up. Oh, this *is* bad, isn't it. Just comes in at random, you say?"

"A paragraph or two at a time, with no predictability at all. My people get settled in and the results seem to start being useful when out of nowhere it happens again. I can tell very quickly by now, one of them will let out a hoot and the others drop what they're doing and come running. They, well there's a bad morale problem developing. It's at the point where they're less interested in their work than they are in the next adventure of this... this..."

She spluttered to a stop, and the President, shuffling the printouts until he located what he was looking for, completed her stalled sentence. "Suzanne," he read, "Suzanne the Sensuous Stewardess."

CHAPTER 21

The first metal detector had taken Sylvia by surprise, and she'd had to be very inventive before they would allow her onto the plane. "Severe fractures... titanium braces... so natural to walk again I sometimes forget about the accident... oh dear, am I going to have to undress?"

Thereafter, aware of such devices and the whole tribe of electronic peekers and listeners which seemed to turn up in the darnedest places, she simply played with them to the end that she became invisible, inaudible, undetectable. This expedient however didn't solve the problem of human peekers and listeners. Or followers. Smitty had been right about surveillance. From her first departure to the airport there had been either two or three of them, always discreetly distant, always there.

She couldn't shake them by flying. Half a dozen changes established that their resources were at least up to hers, even though she could fiddle reservations without mussing a hair. She couldn't lose them crossing borders, and her passport was a miracle of top-level, don't-mess-with-this-lady stamps and endorsements and God-and-The-Chairman visas. She couldn't leave them behind, on canoe or camelback or hot air balloon or wet suit.

The chase eventually lost its entertainment value for her, and in Maracaibo she decided to play hardball. When she was sure her two most visible followers, the tall one and the older one with a little pot, were on the job, in fact checked in at her hotel (well, the list of bearable ones is very short), she ordered up a limo. Then, dressed as for an afternoon of poolside cocktails, complete with heels and a straw picture hat the size of a manhole cover, she descended, was handed into the two-parking-meter white limousine, and told the driver in commendable Spanish to drive along the lake.

Lake Maracaibo is not what the word 'lake' conjures up -- cool fresh water, sailboats and swimmers, cottages with lawns running down to little jetties and brightly-painted rafts, birds skimming the glistening surface, the smell of barbecues and the merriment of splashing children in the air. Lake Maracaibo is the damp wing of Hell.

The land is clay and sand, leached, baked, flat, hardly firm enough to walk on. It meets the water imperceptibly, so a line cannot be drawn where wet dirt becomes dirty water. Somehow life has toed in along this margin between brine and grime, a scrawny, chest-high kind of mesquite which approaches green from the grey-brown side, and is tough as barbed wire.

Separating the grey-yellow flatness of the land from the grey-green flatness of the water, this vegetation has a clear niche, which it crowds, sometimes a hundred yards in width, sometimes half a mile. These are the colours and the forms of Lake Maracaibo. They waver and dissolve as one looks for a horizon in any direction -- water and land have equally no place where they meet the sky. Just shimmer and mingle.

The heat cannot be explained to a foreigner. There is more moisture in the air than anyone from someplace else can imagine, and the air, unmoving, superheated, almost tangible, weighs like winter clothing and forty pounds of body fat.

The wellhead pumps on the lake nod and levitate over the water. Their rockers move noiselessly, as though the air is too thick to carry sound. The stench of oil is complete, it is the very air. This is not the clean sharp smell of 10W30 being poured into your car at a throughway service station. It is the stink of fifty-million-year-old death, exhumed carelessly and spread to finish its rotting in a place more terrible than any grave.

Three quarters of an hour's drive along the lakeside Sylvia told her driver to stop, got out, and sent the car back to town, dismissed for the day. The driver, accustomed to very rich gringos, did as he was told without comment. She watched as the limo shimmered into nothingness, then continued watching until yes, there it came, another automobile making its entrance through the dancing curtain of distance. Her followers had followed, and seen the limo returning empty.

Her flamboyant dress and outsized hat she knew made her very visible. When she was sure she had been spotted she set out through the brush away from the road and heading toward the water. They followed the only way possible, afoot. She led, on and on, stumbling in

the impossible footing, raked by the brush, not in the least uncomfortable, full of bounce and fun. Her followers, an hour into the trek, were almost beyond the limit of vision.

She stopped, put in a phone call, and waited. Her pursuers stumbled closer. She could see their exhaustion. They staggered toward her now, unable to make even a pretence of coyness. She watched and listened, and in a minute heard. The plane she had arranged had found her, had zeroed in on her hat. She waved this happily. The plane wagged its wings, circled, landed on the water, and taxied to the shore where she waited. Its pilot, a gallant Latino whom Sylvia had led on outrageously the evening before, jumped into the soupy water, splashed ashore, swept her into his arms and carried her back to his craft.

While the float plane revved and gathered speed for its takeoff, Sylvia shed the tatters that were left her and changed into the sensible travelling clothes she had deposited with her airman. She bent forward and spoke into his ear. He nodded, and as the plane cleared the water banked hard toward shore. She pointed to the two men. He adjusted his bank to pass over them and then, climbing, turned south.

The followers, fallen back to the ground, watched as the lipstick-red float plane passed overhead. And continued to watch while a manhole-sized straw picture hat came sailing down from the sky to land a few feet away. They didn't bother to pick it up.

As they climbed away from Lake Maracaibo Sylvia, now fully clothed, took the seat beside her pilot friend and tugged at his sleeve.

"Que es, Blondie?"

"Rafael, you've been around. What's the most awful place in the world?"

CHAPTER 22

As he made his final inspection in the bathroom mirror, adjusting the cummerbund microscopically and flicking a possibly real fibre of lint from the front of his jacket, Xiu experienced real time travel. It had become 1973 and he was once again facing Valley High's Senior Prom.

"Crap," he told the mirror, "that was a previous incarnation. This is the Project Bash and you are now a thoroughly-recognized genius, with more style than any basketball player in the joint."

The mirror looked back at him with somewhat less confidence. He stepped closer and stared it in the eye. "You, my man, are going to score tonight." The mirror slowly, carefully, shifted to a knowing smile, then winked. Xiu turned on his heel and strode out through the apartment toward destiny.

Smitty, following his own dictum that everyone should come as a single to the Countdown Party, arrived early by himself. Although the official thirty-day countdown didn't start until tomorrow midnight, this company-paid-for extravaganza promised to put many participants hors de combat until at least then.

He walked across the assembly hangar floor from one end of the now-cleared section to the other, peering carefully over to where the Capsule lay, camouflaged by moveable cranes, scaffolding, mobile equipment, rented bunting and imaginative lighting. From the orchestra's platform he could make out no hint of the huge cylinder which slept in the shadows. Moving over to the bar he was still unable to see anything of the Capsule. He was satisfied. The band members would be the only non-Project people present, and they would remain innocent, barring accident or nosiness. He spoke to the security captain, who assured him that wandering musicians would be discreetly steered to the bar, the smorgasbord or the john.

People were arriving one and two at a time now, and Smitty shrugged and squirmed his unaccustomed tux into hanging more or less appropriately on his outsized frame.

"Hello Agnes, Marina. You're both looking good enough to eat. I always suspected there was more under those coveralls than met the eye!"

Agnes and Marina giggled at his blatant fib and wandered off to the bar.

"Ignace, delighted to see you! Your people will fall over when they get a look at you -- at both of us. Hey, this is needed. Unwind! Enjoy! Come on you two, singles tonight, remember?" Jan and David, engrossed, barely looked over at the big man. And then just smiled and returned to each other. Smitty grinned.

The hangar floor, spotless now and dusted with dancing wax, was filling nicely as more and more of the Project staff arrived. Almost all of them lived here at the Complex and had simply walked, agglomerating into twos and threes and small parties as they made their way from quarters toward the enticingly-lit assembly floor ballroom.

The dance was well conceived. Countdown would be ferociously busy and taut. The Capsule, after so many months of effort, was finally nominal. This break was well-earned by the thousand-plus inner group of scientists, engineers, technicians and assorted other rabble, who seemed to be all showing up. Smitty for one was planning to have a memorable night off.

As the band struck up a fanfare he stepped to the stage and adjusted the microphone, tapped it to make sure it was working, and welcomed everybody. He concluded with "Just a couple of ground rules. Try not to frighten the boys in the band, and last one out please turn off the lights. Do your thing, maestro!" The dance was underway.

Early in the evening Xiu made his move. First he had a short chat with the bandleader, in which money changed hands. Then he worked his way through the dancers to where the Bioladies were clustered. During the last few feet of his approach he felt another flicker of Valley High misgivings. The Biology Section, why were they virtually all women? All *big* women? He squelched the hesitation and stepped into their midst.

"Hi, troops, is everybody wound up and ready? 'Cause I'm going to dance the lot of you to ribbons! Who will be the first lamb led to the slaughter?" He spun on his toe and took a severe-looking woman with red hair and a green gown by the hand. "Jessica, madonna of the cryo

lab, will you do me the honour?" Jessica, on the delighted urging of her peers, stepped onto the floor with Xiu, as the band broke into a cha-cha.

Xiu was a good dancer, in fact a superb dancer. He made Jessica look polished as he guided her, glided, swayed in and out, beside her, around her, away from and back to her. The dancers around them slowed to watch, then stopped to admire. When the dance ended they applauded as Xiu bowed to his partner and stepped with her back to her friends.

"You're a wonderful dancer, Jess -- save me another later, will you? Now, who's the next victim?" He repeated his spin, and this time caught a very tall, thin technician by the hand. Ignoring the difference in height, he pulled her toward him and grinned upward at the pinking woman.

"Rose-Ellen, my deah, shall we cut a rug?" The latter nodded and he led her off. The band played a samba, and again Xiu was pyrotechnical. His partner added to the effect by being a quite creditable dancer herself. The two of them had a large ring of cheering spectators by the dance's end.

As dance followed dance, in Xiu's requested sequence, he returned time after time to pluck new partners from among the Bioladies. Each dance was spectacular, the circle of watchers growing larger as word circulated of Xiu's inspired performance. And as he went through the reserved and self-contained cluster of women he noted with happiness that it was diminishing. By bringing out, showing off and de-icing the women he was turning them into desirable beings, and other partners were increasingly offering themselves.

Finally it was time. The last of the original group, now almost by herself, he took firmly by the hand and walked onto the floor. The band struck up Dirty Dancing. The waiting circle of onlookers howled and cheered. Mary Ball looked around at the expectant audience, down at Xiu, then shrugged what the hell and set to with her partner.

She amazed him. The pair of them amazed the now-total crowd of which they were the focus. When the dance ended an encore was demanded, tumultuously. They complied. Another encore was hollered

and whistled and clapped into being. When this came to its conclusion the Drs. Xiu and Ball simply stood, hand in hand, and waved 'no more' to the circle. As though in response the band started into a slow number, with only enough beat to keep in step by. The crowd dispersed, attending one another again, and Xiu took his partner in the conventional dancer's embrace.

"You're remarkable, Mary Ball. Who'd have thought it?"

"What, that I dance?"

"That you could turn your body loose like that. I think I'm in love." She laughed merrily. He nuzzled the nearest breast with his nose, casually, but with undisguised intention. She broke off her laugh and blinked over his head. He nuzzled the other breast. She resolutely took no notice. Swaying to the easy, regular tempo of the music, he firmly tucked his ear against one breast and his nose and mouth into her décolletage. Thus they remained, barely moving on the crowded floor, for a dozen bars.

She had to speak. "Dr. Xiu, I'm *not* in love." The result was not what she had hoped for. He turned his head and looked straight up into her eyes from between her breasts, firmly between them.

"Mary, I want you. Now, tonight. Not a woman, you. I think we share something... warm and human. Something... tell me I'm loathsome and I'll shut up." His chin was parked on the neckline of her dress. The dance continued.

She looked down into his soulful dark eyes and said "I've never seen you without glasses. Are you wearing contacts?"

The band took a break after the slow dance, and Xiu walked Mary Ball back to the seats in the sideline shadows, his arm encircling her waist, or more accurately her hips. They sat. He picked drinks from a passing trayfull, and pursued his mission.

"We don't have any time for the ordinary nonsense, Mary. After this one quick night we'll be going full time and flat out on the countdown routines. So please understand that I have to jump over the fence at you like this. I'd like to be slow and gentle, and just let it happen

between us but... if I don't take this chance, and risk having you reject me then, well, I'd regret it for a long, long time. I'm being awfully honest, because this is so important to me. Am I being just a jerk, coming on so hard?"

Mary, who had been working with great intensity and without interruption for over a year, accepted a second drink and looked over at him, almost at the level now they were seated.

"No, you're not a jerk for being so direct. After all I am a biologist. And a woman. I... this is flattering, you know, to be treated like a grownup. By a man. With sex on his mind. I like you for it." He reached for her hand. She withdrew it. He dropped his extended hand onto her knee. She picked it off and held it, looked at the clasped hands for a moment, then raised her eyes to regard him.

"Don't think I'm resisting you out of prudery, or because, ah, because we're so different."

"Don't you like me at all? Am I so "

"No you're *not*," she interrupted, "and don't think like that about yourself. You're a good man, and you're kind, and I love your sense of humour. And I do like you." She ran out of words, and finished her drink.

"Then sleep with me. Tonight. We'll be good for each other, I know we will."

She continued to look into his dark, earnest eyes. "I do like you," she repeated, "and why else do people go to bed?" The question seemed to be addressed to her own inner monitor. He stayed silent, with true instinct. She didn't speak for several minutes, alternately looking at him, their joined hands, and at some great distance within the floor in front of her feet.

"Dr. Xiu," she at length spoke, "I feel... close to you right at this moment. And I'll be honest too. For whatever reason this... " she looked at their hands, still holding, "is very comfortable. Would it be all right with you if we I don't want to lead you on, but if we could get away from here and *talk* for awhile? Would you like to do that?"

"Your... " Xiu had to clear his throat, "your place or mine?"

When the band filed back onstage and began playing again Smitty, who had invited himself along with several trays of drinks to their table during the break and fraternized copiously, quietly sat down behind the sax player. That worthy, now with his tenor out and working, nodded to Smitty, who reached past him to take the unused baritone saxophone. As the second number started he put the instrument to his mouth, wet its reed, and joined in, reading his friend's chart over his shoulder.

Half an hour later, well warmed, several more rums to the good, he took an ad lib solo. The leader winced only once. Thereafter he took several, with increasingly free interpretations and variations on the themes at hand. Finally he rose halfway through one number, Yakkety Yak it was, and delivered a full two minutes' worth. At the end he stood by the leader's invitation to take the soloist's bow, and fell backwards off the stage. His fall was broken by a stack of instrument cases, and the sax wasn't scratched. The party really got rolling from that point.

Much later Smitty made his second contribution to the general recreation. One of the electronics techs, a fine figure of a woman, was moved by the encouragement of her fellows and the joy of the evening to undertake a striptease in the middle of the dance floor. The band quickly picked up her tempo and supplied appropriate accompaniment. Smitty, one of her encouragers, was soon inside the circle copying her movements. In a moment he progressed to copying her disrobement. It took five minutes for the two of them to arrive, simultaneously, at a state of nature. The applause was prolonged and deafening.

Mary's eyes were open before she was fully awake. She had heard something, not loud but unusual, which roused her, a noise from the kitchen.

"Hello?" she called fuzzily.

"Good morning," Xiu called back. "I'm trying to find stuff for breakfast." He poked his head around the corner. "Stay there, I'll bring it when it's ready." She settled back sleepily, and glanced over at the

clock. "Do you know what *time* it is?" she spoke toward the kitchen. "It's after two!" Xiu smiled happily as he worked on the bacon and eggs.

Shortly he appeared carrying a tray full of breakfast for two, parked it across her lap, and climbed in beside her. She smiled her appreciation and they both dug in hungrily. When they had their fill he removed the tray and brought a pot of coffee and cups. With the coffee she felt like talking.

"That was really good."

"The breakfast or last night... and this morning?"

She simply smiled at him over her mug, and spoke when the sip was done. "I'm awfully glad that last night happened, Dr. Xiu."

"So am I, Dr. Ball."

"That's not fair, I don't know your first name."

Xiu would have endured torture rather than reveal it. "Xiu will do, me Xiu, you Ball?"

"That's vulgar!" she laughed, then straightened and stared in pain.

"What?" Xiu was startled. "You're hurting. What's wrong?"

She waited until the spasm had subsided, but remained sitting up. "I'm not really sure. I had an awful wallop in the belly. I think we were a little too vigorous last night." Again he smiled happily. "And I've, ah, had a little microsurgery lately. Probably the two factors combined. Oh don't look like that. It's all over."

Xiu shared every bachelor's superstitious discomfort about women's innards. But he had been truly alarmed, and he was a little guilt-ridden. "What surgery? Some sort of cyst or... something?" he trailed off vaguely.

Mary, now comfortable and happy once again, decided to tell him. He would be the first man to know. Well that was probably all right. He

was sympathetic. And bright. And belonged to the downtrodden club in his own right. Whatever, he should know.

"I had an ovum removed. No, it was healthy," she read his mind, "and there's nothing at all wrong with my physical person. That was the fourth I've had taken out. They're in the bank."

He didn't follow immediately, and it showed. "The genetic bank, for the Capsule," she enlarged. "You know that there's a human contingent in the sperm lockers? Well we women thought about that a lot, the idea of sending only male genetic material into the future. And we decided that was just pure unthinking Chauvinism.

"Some of the girls got quite worked up about it, in fact, and one of them, we don't know who, as a protest or just because she was mad -- it doesn't matter -- took every one of the human semen containers and emptied them into one big flask." She smiled at the recollection. "And stirred."

"They weren't identified as to donors, surely?"

"Not officially. Everything else is meticulously ID'ed, but the human material is supposed to be anonymous. Somebody in his wisdom decided who would supply the semen, or where it would be drawn from -- there are several outside repositories for human semen, you know, with different specialties. One has a rich-man clientele, and they charge a huge fee for the old goats' try at immortality. And there is one that goes after talent -- composers, Pulitzer and Nobel laureates, that kind of quality. Anyway, the rumour is that at least some of the semen was included because of pressure. You know?"

Xiu was entertained, finally, at this picture of the forcibly democratized sperm. "There could be some strange bedfellows in that flask," he chuckled. "You were saying that you've been giving ova for the Capsule bank?"

"We had a meeting, the women, and voted to just do it, to balance the books. And so we do, sixteen of us who are able, once a month. We've got quite a collection in the freezer by now. I won't name names, but you probably know all the donors."

"That is right on!" said Xiu. "All hush-hush, I gather?"

"Oh, very," replied Mary. "I was thinking when I started to tell you that you would be the very first man in on the secret, but that's not true." Her thoughts forced her to giggle unexpectedly, which brought another spasm, which had to subside for a minute. Then she explained.

"One of the cryo engineers got wind of what we were doing somehow. A nasty little brute who had been pursuing one of my women for quite some time. She didn't like him, made no bones about it, and finally told him that unless he stopped bothering her she would go upstairs and ask to have him dismissed for cause.

"This infuriated the -- gentleman -- so much that he wanted revenge, as far as we understand. He wanted to hurt her for rejecting him. As I said, he knew about our ova donations. Well one night he broke in, located this woman's ova, opened the cannister, and masturbated all over them. He raped her is how he probably thought of it." She had to release laughter, and then to subside, once again.

"I don't think that's very funny" said Xiu.

"Two things," gasped Mary, holding her middle tightly. "One, he misread the coding, and raped a Landrace boar. Two, the cryo monitor -- that's your big computer Papa, yes? -- detected a temperature rise while he had the cannister open and was doing his nasties into it. And of course gave it a whiff of liquid nitrogen to bring the temperature back to spec.

"I know the lab head at the hospital where they took him. She said that by some miracle they didn't have to amputate, but he's now definitely..." she reached for a cigarette, bent and twisted it into a sagging spiral, and held it up in front of Xiu, "a changed man."

CHAPTER 23

Riding a horse backward, Sylvia decided, is the same order of behaviour as playing the piano with one's feet, an unnatural variation on what is to begin with an unnatural act. She hoped her animal was endowed with more than its share of survival instinct. She watched the rider behind her, which is to say whom she was facing, when she could make out his form through the whirling snow. Samdadchiemba, his name, practiced itself in a recess away from her conscious awareness. The man had caught her interest during the caravan's previous stop, as it paused to rest before attempting this last, most demanding pass.

The signal gun, to awake and prepare, had sounded a little after midnight. She had listened as the lamas were consulted about the propitiousness of starting immediately or waiting for the dawn. Some said the calm would turn to a furious wind as the next day arrived. Others divined a contradictory morrow. The man following her, Samdadchiemba, had spoken. He was all for being done as quickly as possible with this less-than-lucky pass. The wind is calm now, this we can see. We cannot see what it will be in the morning. Demons are muddying the divinations of the holy men. Who can say which interpretation is in error? But all can see that the wind is calm now. His words had tipped the debate, and the caravan had set off.

At first, because of the depth of the snow, their ascent was alternately on horseback and afoot, clinging to the horses' tails. Then the wind came, viciously, and the two of them had followed the example of those with horses and mounted facing down the pass, letting their animals follow-the-leader as best they could. She didn't have to protect her face from the iron cold, but adopted the position of the others to avoid seeming odd. Samdadchiemba's back, ten feet before her face, was often invisible in the dark and through the churning, driven snow. His horse's steaming muzzle was bearded with frost. It plunged ahead steadily, never more than two or three feet behind, aware with the lesson of millennia in its genes that it must not lose contact. Samdadchiemba. As she matched mental pictures she was sure it was the same man. When the caravan was forming, and her attention was tightly focussed on decoding language and behaviour, there had been resistance from the pilgrims. This woman would embarrass the lamas. She would frighten the animals. Luck would

depart. Then the other case was put, she was certain now, by Samdadchiemba.

Yes she is a woman, but a foreign woman. Look at the straw-coloured hair, the bleached face, the watery shade of her eyes. How could such distract any man, let alone the devout lamas who are through long habit unaffected by even beautiful women. A camel like this should not be left behind on the ground that she could cause lecherous thoughts. Such an argument is chaff that blows away before even my wind.

She will frighten the animals, has been said. You are pilgrims, you do not understand the ways of camels and yaks. Ask the drovers and they will tell you, there is no fear in them of any being that walks or flies. Demons and whirlwinds do not frighten them. Precipices do not disturb their dreams. The terrible cutthroats who are their masters can only sometimes get their attention. They do not even see little yellow women.

And who is there among you to say that she will cause bad luck during the journey? Is it not possible that such an ugly woman will frighten away the wayside demons, who have never seen such a being as her?

He won her admittance to the caravan, then become one with the bustling travellers before she could react with thanks. Now, as morning seemed to be transmuting the surrounding opacity into slightly more luminous murk, she regarded the swaying back of this persuasive man. He had a quality. She would somehow meet him. If time was pressing her to condense cultures into types, and pack types into individuals, here was Tibet.

The storm stopped at mid-morning, as the caravan was filing through chest-deep snow in a narrow defile. This was the summit of the pass, which broke out of the mountains half an hour later to reveal the community that was the caravan's destination.

Not Shangri-La, thought Sylvia (now facing the same way as her horse), but no bloody bad! Awhile later, after having given her surroundings a closer examination, she revised the first assessment upward. In a way it was a Shangri-La. There was no Han presence

that she could detect, none of the lingering scars of the Cultural Revolution so obvious elsewhere, none of the deindividuating progress and improvement, the cement-block-bicycle-transistor-ballpoint marks of People's Republicness. This horizon, she observed with delight, had somehow managed to stay lost. Because that awful pass is the only way in? Probably.

Careful checking could detect no electrical power or communications presence. This gave her an intense hit that was half aloneness and half release. She vibrated with awareness that at this moment, in this place, she was as close to being completely human as she had ever come.

She sought out Samdadchiemba as quickly as she could after finding an accommodation and stowing her belongings. A few of the caravan's pilgrims were still in evidence as she walked through the market square. These she approached, but none recognized the name or description. She then wandered among the yaks and camels, which were being attended and unfreighted by their drivers. Did they know of such a one, whose name she had been told was Samdadchiemba? One by one they stuck out their tongues at her, scratched an ear (she recognized this as ritual politeness but was not yet an adept herself. She hoped that a big smile would be accepted as the foreign equivalent), and regretted not knowing the name.

"A man as yourselves, with well-worn clothing and sheepskin boots. His hair is cropped like a lama's. Forty years of age, perhaps, though his face is unlined."

"Ah" spoke a young man with long hair spilling from beneath his red string turban, "the man with the good horse who talked?"

Sylvia unscrambled this and nodded at the Khampa. "Yes, he rode a horse. And he debated with the pilgrims when they wanted to leave me behind. Do you know where he is?"

The young man looked carefully around the market, then tugged at his jade earring. "The horse is not here." He called to a fellow tribesman two yaks away, asking the whereabouts of the fine highland mare with the red saddle with a mended left stirrup. "Up the hill," and a jerked thumb, was the reply.

"He has gone up to the monastery with the lamas."

"Am I permitted to go there?"

"Why not? You are a pilgrim. You are here."

"Thank you." She smiled again and strode away toward the lamasery which hung above the town like a white sailing ship.

The red-robed lamas, for whom pilgrims were a large part of daily life, greeted Sylvia politely, without appearing to find her out of the ordinary. "Yes, we know Samdadchiemba, and he will be found and told of your enquiry. You can wait for him inside. Please, there are many rooms for visitors. You can be comfortable." She followed and found herself deposited in a plain cell decorated, as Fr. Huc once put it, only with cleanliness. A low table was its single furnishing.

The unglazed window looked onto a patch of roof, which Sylvia peered to see more of. Yellow metal cladding, lapped and nailed, fell away to her right to the roof's corner from which the head of an elephant-trunked creature, with feathers or wings flowing back into the hip of the roof, bayed silently but with great energy skyward. It seemed to be gilded.

Two of the red robes entered, one bearing tea, the other what looked like a bowl of chopped hay. Tea was poured for her, and enhanced with a dollop of something she didn't like the look of. The hay was apparently for smoking. She accepted the hospitality with unshuddering thanks, the two departed, and she sat cross-legged at the table.

With time alone, she now attended to the tickle in her mind that Samdadchiemba had started. For some reason the man, or more probably the name, had a flag on his card. She had puzzled at this on the trail, without conclusion. Now she utilized the moment to return to home base on the other side of the world, to reflect with the assistance of her full facilities. Why was it a name she had met before?

The body remained stone motionless for several minutes. When she returned and focussed, she had company, seated across the table, as motionless as herself. As she moved the man opened his eyes.

"Forgive me if I disturbed your meditation, lady. Your serenity moved me to join you."

"Hello, Samdadchiemba."

"They said you knew my name."

"I asked who you were when you spoke out to have me allowed into the caravan. I wanted to thank you, and to meet you."

"You do me honour, lady, but your gratitude is not called for. All whose hearts direct them here are so moved by Buddha. I did no more than remove a small impediment in the path of your holy pilgrimage."

"Sammadchiemba, I've come a great distance in search of a certain understanding, and I must leave too soon. May I have some of your time?"

"I can give you no understanding, lady. I am a most simple man, untaught and endlessly ignorant. There are wise teachers here who may be able to help you toward enlightenment. I will ask them... "

"No, it's you I need to talk to. Believe me, I have... meditated, and only you can answer my questions."

Sammadchiemba lowered his gaze to the centre of the table between them. "I will try, if it must be."

"Now?"

"It is always now. Of course."

"Good. Okay, first question. Are you the same Samdadchiemba who accompanied the Belgians on the recent Everest climb?"

"I had the good luck to find employment with them, yes."

"And did you do what the reports said, and carry all four to the summit on your back, one after the other?"

"They wanted greatly to go there, and were not able to travel the last little distance without some help. I was hired to carry for them. Any honest man would have discharged his duty in the same manner."

"Then when you got back to base you refused their bonus, and disappeared before the news people could talk with you?"

"For the first I will say again that I am an honest man. For the second, I was ashamed."

"I don't understand."

"Although I accepted the Belgians' employment, and took their money, yet I should have accompanied them for nothing."

"I still don't understand."

"I was on my way to that mountain's top for my own purposes. By joining with their party my chance of getting there was greatly increased. In justice I should have paid them. But I had no money, and was weak enough to conceal the real situation and accept their wages."

"You were going to climb Mount Everest alone? Why?"

"It is sometimes necessary for me to go to high places."

Sylvia's western impatience at the tempo of this discussion was slowly subsiding. With resignation she asked once again, "Why?"

He looked up at her. "To help travellers, by providing them with horses. This is the charity it is my blessing to be called upon to do." He obviously intended this as the final answer to her questions. She took a couple of slow breaths.

"I am a foreigner, as you know. Please think of me as a small child who needs patient explanation of the simplest things. Okay? You climb mountains to give horses to travellers. As charity. As your calling. This makes no sense to me."

Samdadchiemba smiled, then laughed out loud. "Lady, forgive me for making a puzzle. I will show you." He reached into a recess in his clothing and brought forth a ribbon-bound packet. This he placed on the table, untied, and spread open. It contained a sheaf of small individual sheets of paper. She picked one up and looked at its skilfully executed woodblock print of a horse, saddled and bridled, going at full gallop.

"I take these to where the wind can carry them farthest and let them fly away, and by the power of Buddha they are changed to real horses, which offer themselves to travellers."

"Oh," said Sylvia, "of course."

She continued chatting for awhile on several topics, and at length asked about the absence of Chinese. "Are they unaware of the monastery here, or is the pass too difficult for them?"

"You speak of the crazy men who deny Buddha and drive lamas away from their studies to toil in the fields?"

"Those."

"The demons of the pass do not like such men. When they try to come here the demons cause some to fall over the cliff, roll rocks on the heads of others, and in many ingenious ways assist them toward their next incarnations."

"Every last one of them?"

"Buddha has given these demons great determination."

"Only the ChiComs?"

"As it happens."

She regarded the gentle little man opposite with the beginnings of understanding. They continued talking for many hours.

CHAPTER 24

Three people had been responsible for the Capsule's inner design (End Use Area). These were an architect, a psychologist, and a fifth-grade schoolteacher.

The architect manipulated available space to allow as many of the future's researchers as possible simultaneous access to the many categories of material and information held by the Capsule, with provisions for the specialized equipment and facilities needed by each.

The psychologist fine-tuned the environments devised for the various disciplines by the use of personality profiles, controlled satisfaction, comfort and efficiency matching-by-profession, and the classic time and motion formulae.

The schoolteacher brought her classes to visit successive mock-ups, watched what her charges did with and to them, and made brief, pithy reports of her observations.

Somehow this partnership worked marvellously. Smitty and Lionel Grayson, doing their tour of the completed EUA, decided it might best be described as the offspring of a Malaysian opium den bred to Le Drug Store. Between them they could find only one fault, which they corrected via a memo to the head of Structural Engineering:

DUPLICATION OF WASHROOMS UNNECESSARY.

ALTER MEN'S TO UNISEX.

REBUILD WOMEN'S AS PUB (ref. Tony's B&G) .

CHAPTER 25

"Never forget what you learned in Customs College, Johnson, and never count on it to catch the bad guys. You need instinct. When you can *feel* contraband coming through that door, that's when you've really graduated.

"Sit here long enough, watch enough of 'em playing their games and doing their tricks, and it gets easy, very easy. The crooks, the chisellers, the thrill-seekers, one day you'll look up and they'll all have little lights on them flashing at you, saying 'I'm wrong, come and get me'.

"Stay with me and just watch for tonight, Johnson. Up here you can see a whole arrival at once, spread out like pennies on a plate. The bad pennies can't hide. Watch and learn. There, there's the Far East flight coming up the ramp now. Oh-oh. Oh-oh... bingo!" She picked up the phone before her and pressed a button. On the floor, Gate Three glanced up at their glassed-in booth and answered his telephone.

"The blonde, just coming through the door, see her? Pull her out for me." She turned to her trainee with the tiniest of smiles. "Did you spot her?" He shook his head. "Okay, look at her, really look. She's just spent eleven hours in an airplane. She's dehydrated, disoriented and time-lagged, you can see that from up here, right?" He nodded.

"That's what she's showing us, a tired young women, somebody's daughter, somebody's sweetheart, back from her holidays, loaded with cheap souvenirs, and squeaky clean. That's what *you* see, what you're supposed to see.

"What *I* see is that she's carrying. Not a doubt in my mind. How do I know she's dirty? She was the first one through that door. Think about it, Johnson. The plane docks. The lights come on. Four hundred people grab for their belongings and try to get out at once. They have to sit down again, then work their way into the line in the aisle, and stop and start while others do the same in front of them.

"At last they reach the plane door and step onto the ramp, but there are three exits feeding the ramp and it's even slower then inside. A couple of hundred yards of all these people squeezing along to get

through one door, and they're through. But on the other side of that door there's total confusion. Everybody stops to figure out where they're going. They have to find the luggage carousel, their carousel. To get the flight number they dig into their pockets and purses and carry-ons. After they've found the signs they have to fight their way through people, hand luggage, carts, handrails and queue ropes until they get to the carousel. If it's the right one, and the luggage has arrived, they are six bodies back, trying to see their bags, and when they see them, get to them in time.

"Two or more pieces of luggage are always widely separated, so that after they've retrieved the first they have to watch, squeeze in, grab the rest, and at the same time keep the first from being stolen.

"Finally, when they've got everything, they have to both carry it and fight their way back out of the crowd. Then, when they've found the Customs signs, they have to pack themselves, their belongings and their suitcases for another quarter mile. Then, at last, they come through that door out there.

"It takes years of international flying to be first through our door, Johnson, and the toughness and meanness of a linebacker. That's no fluffy little college girl out there. That's a pro, and I've got her! Come on, she's had long enough." She picked up her clipboard and sunglasses and led the way out.

"Open your bags on the counter here, please." Sylvia complied. "Your shoulder bag too, please." Sylvia plunked her feedbag carry-on down beside the suitcase. "Empty the contents, please." This was done, making a precarious pile. "Leave the bag on the counter, please." Sylvia tossed this on top of the pile of contents, and drew a sharp stare. "May I have your declaration, please."

Sylvia glanced up at the clock, saw 2:39, and had to think for a second to recall whether this meant AM or PM. It was morning.

"Miss... Smith, do you have anything to declare other than what's written here?" Sylvia thought of the line from the commercial, "Only my tremendous admiration and respect for the entire U.S. Customs Service, sir," but instead shook her head.

"Well then, let's have a look." Methodically the Inspector removed every article from the first suitcase, unfolded and shook the clothing, opened and emptied a zip-case full of papers, then felt every inch of the lining. Picking up the suitcase she tapped it, top, bottom and sides. She inspected the handle. She ticked off a couple of items on Sylvia's declaration form.

The second suitcase was a repeat performance. Sylvia had some little gifts and souvenirs for her friends. These were all unwrapped or removed from their boxes, checked against the form, and put to the side with the first lot.

She picked up Sylvia's big leather shoulderbag, turned it upside down and shook it, looked inside, then felt it carefully all over, not neglecting the strap. Now her attention moved to the oddments from the bag. One by one these were picked up, turned over, held up to the light, smelled, bounced in the hand for weight, ticked off the list when appropriate, and dropped onto the stack of passed items.

When the pile was done she turned to Sylvia herself. With clipboard and pen busy the Inspector walked around her, asking to see labels, to have shoes removed, viewing them closely, ticking. At last there was nothing left to inspect.

"Everything seems to check out, Miss... Smith." Sylvia reached for her bag to begin returning its well-churned contents. The bag was pinned firmly to the counter by a square-jawed hand. "Everything except this!" She leaned over into the non-list pile, snatched up a small, ribbon-tied (now untied) packet of wood-block horse prints, and passed it to her trainee. "Smell this, Johnson."

He did as ordered, and recoiled slightly.

"Would you say that these innocent-looking papers had been soaked in a *substance*?"

Johnson finally spoke. "It smells like *something* for sure."

The Inspector smiled icily. "Well, Miss... Smith, would you like to tell us what the substance is that is impregnated into your edible rice paper pictures? Or shall I send them down the hall and have our very efficient lab tell *you* what it is that you're carrying?"

"Yak butter," said Sylvia, "for the tea. Some of it got smeared on the horses. I guess it does smell pretty bad."

The Inspector didn't dignify this with a reply, but gathered the prints together and handed them to Johnson. "Get the lab on these, now." He departed.

Sylvia, with this, had finally had enough. "Is there a washroom?"

After a long stare the Inspector called over a woman in uniform. "Take Miss... Smith to the washroom. Stay with her, then bring her back here."

In her cubicle Sylvia sat motionless for several minutes. When she returned to her body the uniform was banging on the metal wall beside her ear. "If you don't answer I'm coming over!"

"Okay, okay," said Sylvia, flushing, "relax, I'm coming." As they returned she noticed her companion staying very close, not quite holding her by the elbow, but obviously wanting to.

"Back already, Miss... Smith? Take a seat. The lab will be a few minutes yet."

"Melissa M. Garrett" said Sylvia.

The Inspector blinked, then looked at the plastic name tag on her collar and back at Sylvia. "Lieutenant Garrett, if you don't mind."

"4417B Treblehorn Crescent," Sylvia continued as though her tormentor had not spoken. "Driver's license number 3381 0065 4217 74. Social Security number... well, there's something strange about that, isn't there, Melissa M. Garrett? And about your birth certificate. Melissa M. Garrett was born on the 7th of June, in 1935, in Port Carling, Kansas. But she died three months later, on the road to California, and was buried in the desert.

"We know about you. *Everything.*"

The Inspector had her wallet out. "What number did you say?" Sylvia repeated the number. Very slowly and thoughtfully the Inspector returned license to wallet and wallet to pocket.

"Who are you?"

"You don't need to know, Melissa M. Garrett." It was her turn, and Sylvia gave the Inspector the very coldest, most contemptuous stare she could muster. The object thereof looked away, then glanced around to see if anyone was within hearing distance.

"How did you... " she was half whispering, "that's... it's entrapment, you didn't identify yourself... why me?" Sylvia had begun packing her suitcases. The Inspector clutched her by the arm. "What do you want? What are you... going to do?"

"Pack," said Sylvia, "and leave. As soon as my horses get back. We're not bringing you in now. You may be of use to us here. Just be very, very careful. We're watching you."

CHAPTER 26

"A fertility charm?"

"Think of it as a necklace then."

"It's lovely, Sylvia, and -- oh!" Jan hugged her friend very hard. She tried to hold them back, but tears forced themselves out. "I feel just *awful*. It's exactly like you're going to die the day after tomorrow. We'll never see each other again, ever."

"We'll still be able to talk, Jan, for months and months. Come on, old dear, try it on." She helped, then stepped back to judge the effect. "I think it's you."

Jan, snuffling but working to accept the distraction, looked at herself in the mirror. "It really is beautiful." She shook her shoulders. "And loud."

"You're supposed to wear it when you want to make a baby. When all the little bells are ringing together you're doing it right. The lady I got it from swore it had done the trick for half her village."

Jan hefted the complex artifact, then let it fall back against her chest. "Ow! I think she was making that up. You couldn't wear this in bed. It would poke holes in you."

Sylvia kept her face very straight. "Bed?" she replied, "The old woman talked a lot about making babies -- that's a very important part of their culture -- but she never once mentioned beds. Well, that's your business of course. I thought this would be a perfect thing for you to remember me by. And when you give it to your daughters and daughters-in-law, tell them about me. Tell them I love them and I'm thinking of them."

"Jan, get rid of feeling like I'm going to die. I'll still be alive when your forty-great-grandchildren come along. You and I are both going to go through some grieving, I know that, I know it'll happen. But love, there's a solid little piece of each of us in the other, and we'll have that all our lives. Okay? Now wash your face and I'll show you what I got David."

Sylvia's goodbyes, as she made the time to be with each of her friends, were more difficult than she or they had expected. Most found themselves, as Jan did, facing a kind of loss which only death had given them any experience with. Sylvia had moments when her imminent departure felt like fast-approaching execution.

"I'm terrified, Smitty. Not of going out into space, or the time. That's probably okay. It might even turn out to be the sort of great experience you think it will. What scares me is being so awfully alone. I know there'll be Papa, but -- he's not human. Not alive. I'm going to spend a thousand years without you guys. Without people."

Smitty was looking more serious than she had seen for a long while. The last few weeks had been full to bursting for him, with the countdown clock ticking inexorably, night and day, hour by hour. Nothing, no aspect of the Capsule, was out of focus for him during the final preparations. He was a juggler, keeping his bits of time and attention and energy moving, in the right place, synchronized.

He had been selected with great care, by people who had made themselves rich and powerful through their judgement of human talent. Perhaps half a dozen other individuals in the world could match his qualifications, the breadth of his knowledge, the strength of his intellect, his raw talent for getting things done. Perhaps.

Now this exceptional man, sitting on a sofa in his quarters next to the being who was in truth his creation, finally felt the load he was carrying. Sylvia was important, very important, to the capsule project. But no more so than twenty other elements, from fusion power plant to maintenance robotics, from launch-and-land auxiliaries to sensory array.

Yet at this moment she wouldn't stay in place for him as a mere part of something bigger. He felt a kinship with her that couldn't be reasoned or ridiculed away. Her foreboding of loss, spoken, called forth his own, which had so far been firmly contained and out of the way. He couldn't dissemble now, or do any of his get-on-with-it tricks.

"Sylvia, for what it's worth, once you're gone I'm going to feel alone for the first time in my life. Just a part of me that never made contact

until it ran into you." He couldn't put anything else into words. He didn't have to.

"Thank you for saying that, Smitty. Thanks for having it happen. I just felt a penny drop, I think. I just understood that I'm never going to get over you and the others, and I don't *want* to." She turned to face him, and tugged his sleeve until he looked over at her. "But it won't hurt forever, and when it stops hurting all the good things will still be there. So let's us cheer up and savour, huh. I'll grin if you will."

Smitty grinned. "I don't have anything better to do for a least twelve minutes. And that is probably it. I'm going like a cut cat until you're four hours out, and you're pretty crowded yourself. Anything you'd like me to take care of after you're gone?" He was projecting himself into her place, and realizing what a list of undones he would leave behind.

"A few things I probably don't have to tell you. Keep an eye on my friends, Jan and David particularly. They could use an uncle figure. Do something big for yourself sometime. Something you really want to do. Oh, your present." She reached into a shopping bag on the floor and brought out a leather-bound desk photograph.

"It's a sidewalk photographer's shot. You and me a couple of months ago. It's so ordinary I love it to pieces. Just a couple of unnoticeable people walking down the street chatting, liking each other. No big deals. No science fiction auras. That's the way we should remember knowing each other. I have one too."

Smitty looked at the photo for a minute, then at Sylvia. He nodded. "Yeah, this is what we should remember. I don't have a present for you exactly, but I've had some things done in the Capsule, under the counter. You'll run into them." His phone rang. "My string just got pulled. If I don't see you before you go on board, we'll talk by radio." He picked up the relentless telephone and was effectively gone. Sylvia gathered up her bag, patted him on the arm as she paused, and left.

Down the hall at Xiu's apartment there was no answer to her knock. She leaned the shopping bag with his present against the door, made to leave, then dug for a pencil. She folded the bag down from a pair of bronze breasts mounted on a walnut board, and scrawled on the back,

When they ask, just smile.

Love, injection-moulded Sylvia

After her final goodbye gift had been delivered she went for one last walk downtown, alone. The habit of 'aimless' travelling was well established by now, and Sylvia found herself on unfamiliar streets for most of her stroll. Yet she thought of Seattle as her home town, and soaked up comfort from the store windows, the scurrying patrons of bars and restaurants and theatres. She stood to watch a newsvendor make several transactions, took in cabs being hailed and dropping off their fares, observed hookers and clients making contact, and loved it all.

In the after-dinner drizzle, hurrying along a side street, she was importuned by a unhopeful derelict, who remained in his doorway as she stopped.

"Are you hungry?" she asked.

"No ma'am, thirsty. I need a dollar and thirteen cents."

She thought this reasonable, and was digging in pockets for change when a police cruiser pulled up on the opposite side of the street. The driver rolled down his window.

"Lady, he's just going to drink it." He didn't leave his dry vehicle.

Sylvia assembled a dollar thirteen and handed it to the man, who beetled off into the night, in the opposite direction from the cruiser. She looked over at the cop, whose disgust was incompletely concealed. "I know. He told me why he needed the money." She stepped off along the sidewalk. The car matched speed with her, the driver assessing as he drove.

"You shouldn't be working the streets in this weather, honey. Come on, get in and sit for awhile."

"No thanks. I like the rain."

"I'll say it again, get over here and into the cruiser."

She stopped. He stopped. She turned and walked the other way. He backed up. "Right now, honey, I'm taking you in."

"On what grounds?"

"Soliciting. If I have to get out and come get you, It'll be resisting. Move it!"

Sylvia looked thoughtfully across at the angry policeman. The drizzle was turning into rain, and she could feel water starting to find its way down her neck. Okay, chum, she thought, maybe you're overworked. She walked over, opened the back door and climbed in.

The cop turned to look her over, with menace in his movement. "I haven't seen you before. What's your name?"

"Sylvia."

"Sylvia what?"

"Just Sylvia."

He swung around and made to backhand her. She stopped his hand and broke it. Moving at more than human speed, although very slowly in relation to her mental mode, she deciphered and unlocked the back door, located his handcuffs and locked him to the wheel, removed the key, and stepped back into the street. Switching to normal, she walked off. As she was turning the corner the cruiser's flashers began working, the siren started to wail and the horn came on with a steady bleat. She could hear both horn and siren for several blocks.

Just when she was out of audible range she heard something else which make her stop cold. A call was being sent out on the police frequency, with her description and the warning armed and dangerous. She hailed a cab.

"I'm a crazy rich broad," she said, and told him to take her home. "A hundred dollars if you turn off your light and get me there while I lie down on the floor." She waggled a hundred at him. He reached over and flicked a switch.

Thinking over the experience, she concluded that her home town should have a goodbye present too. She entered the city's police computer, looked around at what its responsibilities were, and settled on the parking tag section. Away out of sight, where it would never be found in time, she tucked in a virus.

Her virus would stay dormant until it was stirred by a tag issued by a certain badge number. It would then attach itself to that number and spread throughout the entire system, replicating and hooking itself into every entry, every transaction which contained that one susceptible number.

The virus was clever and adaptable. It wouldn't kill its host. But everywhere it infected it would garble. A parking citation would become a speeding ticket. A vice entry would somehow alter to arson, or unlawful dumping. Dates and addresses would change. Paycheques would turn into invoices or dress reprimands. The badge number virus would in time invade service records, and alter years to days, qualifications to psychological problems, holidays to absences without leave.

Once it got established, the virus would be ineradicable. Wherever the badge number appeared in the Seattle computer, there it would be, making chaos. Sylvia packed for her long trip in happy contemplation of the misery awaiting her bad cop.

CHAPTER 27

Grandma Noyes and Grandma Steen, in the latter's kitchen, were pleased that the Capsule would be going by at exactly 7:54. Neighbours for all their lives, they had grown up themselves and raised their husbands and children with the understanding that suppertime was immovable. You didn't eat beforetime, and if you arrived late you might get fed but you would not be loved. Supper sitdown was at six o'clock winter or summer, working or idle. Both farms had been tuned to this schedule forever. It was good to know that dishes would be comfortably done by the time of the Capsule's passing.

Cross marriages between the families made socializing among three generations a treat that was always looked forward to. Everyone coming together like this for the evening's space shot felt like a bonus, an extra Thanksgiving or Christmas. The two matriarchs shared generalship of the daughters and daughters-in-law as these prepared harvest-crew quantities of their various specialties for supper. They had a quiet agreement of co-ascendancy in the Steen kitchen for this event. If the track had been built across the Noyes farm, the same compact would have been reached. Old Steen was lucky enough to have got all that lease money, so he could spring for the food and drink. And Grandma Steen could share place.

Six o'clock arrived punctually, and twenty-five-odd Steens and Noyeses, with a few Craigs and one Lee thrown in, sat to eat. The young and middle-aged wives bore in bowls and platters and trays of food from the kitchen, quickly so they could be seated and eating along with the rest. And talking. As always the senior visitor, in this case Grandpa Noyes, said grace. The kids up to high school age had their own table set up on the back verandah, where they could enjoy the company of their kind and still be kept an eye on.

Inside the talk was births and deaths and crops and prices. Outside it was all Track.

"How high's the fence, Jeremy?"

"Gotta be twenty feet of chain link, and four more of bob wire."

"Howja get through the bob wire?"

"Poked it up at the bottom and squeezed through. Got a cut on the behind coming back. Four stitches."

"Gonna show us, Jeremy?"

"Don't be smart."

"Weren't you scared of the high voltage?"

"Wasn't turned on. They always phone before they turn it on. So Todd and me knew when they were doing tests."

"What's the track like inside?"

"You can't see much even up close. All the super-cooling stuff is buried, and the track just looks like a big open culvert. 'Cept when you stand in it it's wide as the interstate, and dead straight far as you can see."

"You sure are a lucky duck. Right across your own farm. You could charge people to come and watch."

"Naw, the whole launch'll be on TV. All we're gonna see here is zip, here she comes, zap, there she goes."

"You kids all ready for dessert?" They were, and the discussion was suspended as everyone considered raspberry shortcake or hot raisin pie with ice cream. Jeremy, who felt proprietary about the launch because he had been present through the entire construction of the Steen Farm section of the track, brought the conversation back on course.

"They say space shots are all gonna be by track one day. The big ones, anyway."

"Bet the Russians haven't got magnetic levitation."

"Sure they do. It's no secret."

"How fast will it go by?"

"They got the rocket sled up to Mach 4 with a dummy."

"What's mock four?"

"Four times the speed of sound, about. Pretty near three thousand miles an hour."

"Did you see the sled, Jeremy?"

"Sure did. Sat right here and watched three full test runs. Loudest thing I ever heard, and the fastest thing I ever saw."

"Can you actually see it when it goes by?"

"The sled part's down in the track, but the dummy you could see. Zip, zap! You gotta know it's coming and watch. You don't hear it until it's gone by. Bang! The track sends the noise up some, but you still gotta plug your ears. And they've got jillions of dollars insurance for things getting broken. And livestock. And people."

"How come they didn't put it out on a desert somewhere?"

"It's gotta bend up, very gradually. And it's gotta be buried in the ground. That's one thing. It's gotta be close to where they make the spaceship -- the Capsule's longer'n a football field. That's the second thing. And they need more power than the whole city of Tacoma."

Dishes were called for, and the young set gathered and stacked and toted. Jeremy, having lost his audience, co-opted his cousin to help bring out the big TV and the VCR. These were put on the lawn, so that everybody could watch. Chairs and a couple of sofas were carried out by the men and set along the verandah. The seniors selected their places first, and so on down the age line. Beer, in a washtub full of ice cubes, was set discreetly inside the door.

The boys got the television working. Nothing but the Launch was available as they swept once through the channel selector. They settled on the local station which, although it was simply carrying network coverage, seemed better because it was familiar. The sound was turned very low, so as not to interfere with visiting.

Toddlers were picked up into laps. The rest of the youngsters were directed to sit down along the verandah's edge, and don't kick the flowers. Coffee was brought around. A pipe and a couple of cigarettes were lit up at the back. Everyone was ready. Grandpa Steen checked his pocket watch.

"Two minutes 'til they light her up." Attention moved to the screen on the lawn. "How're they doing, Jeremy?"

"Everything's go, Grandpa. You want the sound up?"

"Nope. Damn commentators talk so much you miss what you're seeing for listening to 'em." Jeremy, seated by the set, left the volume at a level he could hear.

"Thirty seconds!" he called up to the audience. All chat stopped. All eyes bore down on the screen. Two or three pairs of eyeglasses were put on. Jeremy punched on the video recorder.

Perched atop the highest mobile crane available, the network camera had an excellent down shot for the Ignition. The up-deflected plume was framed perfectly, and held on the left edge of frame throughout the long zoom-back as the Capsule began its effortless, frictionless move forward. At full zoom-back the high camera stayed locked. When the Capsule was just moving out of frame Camera 4 was cut to. At full telescopic, and located perilously just outside and above the fence, it saw the Capsule virtually nose-on. Speed was visibly gathering, even from this view.

Now the screen was split, to include a long shot from the helicopter flying parallel to the track. The Capsule, already clearly racing along, seemed to ride above the arrow-straight track as it cut through green and brown and yellow tiles which were fields. On the bottom half of the screen the telescopic pulled focus to hold an approaching Capsule at constant size. The sides of the picture seemed to zoom away and back.

"Get ready!" Jeremy warned. The whole verandah looked left, to the point where the link fence disappeared in perspective.

"I see it!" pealed one of the girls. Necks craned. Then everybody saw it.

"She is *moving!*" noted a son-in-law.

"Cover your ears!" Jeremy hollered as he took his own advice. An imaginative young man, he had unobtrusively positioned the video camera beside the TV set, so that it took in the entire verandah-full of watchers. He had activated this when he gave the warning, and now

recorded the Steen Farm passage of the Capsule as a reaction shot. This twenty-second piece of tape was called for at family gatherings for many years afterward. The local station played it several times.

It showed the whole clan, aged from two years to seventy-nine, ranked at ease across the back of the fine old brick farmhouse, peering intently offstage left, every one of them with hands to their ears. There was no sound except birds and crickets. This carried on for six or seven seconds. Then, as though they were all on one string, every head cranked hard right, and held the same intent peer. A second later there was a crack! and a roar, which quickly died away. The audience all started visibly as the noise hit. One of the toddlers, in earmuffs, began to cry. This was the only sound for several seconds after the Capsule's roar had dwindled to nothing. Then Grandma Steen spoke.

"My, my, wasn't that something. There's lots more coffee."

CHAPTER 28

Sylvia's body was buckled firmly in its storage compartment, of no use during acceleration. Viewing ports had been let through the Capsule's outer hide in several places at her, then Smitty's, insistence. She had wanted to be watching at one of these during the launch, but had been convinced it would be far too rough for this to be done safely. So she had settled for second best and was taking in the whole thing via the Launch Control monitor, a feed from which was being beamed at the departing Capsule. Through this same linkup she chatted with Smitty while the launch proceeded.

"I don't feel a damn thing without my body. Papa's happy as a clam, but he doesn't really feel what's happening either. This is no different for him than all the practice stuff that Xiu fed him. He seems to like being this busy." The big computer, tightly monitored on the ground, was running the show completely and had been since final ground checks were completed and the go approved. At this moment Papa had hands-on of the sled and the drop-off auxiliaries.

"He'll play the thrusters like a kid at a video arcade," Xiu had explained to her, not noticing the pronoun. "All the inputs, speed, altitude, attitude, mass, time, gees, atmospherics, they're all moving equations that he'll keep balancing against given criteria. He won't be flying, he'll be beating an easy video game." He had this analogy from Sylvia herself, although he'd forgotten the source, from the period when she had acted as translator between the two. She looked over Papa's shoulder briefly now, and assured Smitty that she was in good hands.

"Boy, we're going like spit, aren't we!" She watched as, onscreen, the Capsule neared the end of its track, now on a three-degree incline. "Papa's just hitting the packs -- there, you can see them igniting. Hey, we're flying!" The Capsule continued, now under onboard power, as the track ended and the sled disengaged to fall away on its 'chutes into the ocean beyond.

Downrange cameras cut in to show the Capsule steadily gaining speed and altitude. Papa held the upcurve generated by the track, and was at thirty-five degrees a minute later, when the atmosphere was left

behind. Ground Control's monitor now displayed graphics, which didn't interest Sylvia.

"I'm getting into my body," she announced to Smitty, "hold the line for a minute, will you." Smitty didn't think it was worth the breath to try to dissuade her. The auxiliaries finished their work and were successfully discarded while she was gone.

"Hi, I'm carnate again, thank you God. Whooo! No gravity! And no lights. Papa! Where in hell are the lights -- oh. You really do get to depend on up and down, don't you. Um, that's the ceiling so this must be the floor. And there's the way to -- oops! Hah! It's like swimming underwater, except faster. Ungh! And there's more things to bump into. Here I am at a window -- porthole -- whaddayacallit seeing stars. Wrong side. Those are stars, let me tell you!

"Now I'm working my way around to the other side. Papa! Light me! Thank you. Um, damn, I think I'm lost. Nope, there's the EUA, so this is the way to -- there you are! Now do you look out on our home planet? Yay! Wow! Oh Smitty, it's beautiful It's so beautiful! You still there?"

"How do you feel? The body I mean, is it functional?"

"Sure, why not?"

"No pressure, no atmosphere."

"Wouldn't notice."

"No heat."

"I heat myself, dummy."

"Not tested in those conditions."

"Well I'm comfy and everything seems to work properly. Is there something you didn't tell me?"

"The body was built for Earth use. We had to guess at a lot of things when you wanted to take it along. Like how to keep homeostasis in a

no-pressure icebox. How to keep your skin from getting brittle. A few items like that."

"Well you done good far as I can tell."

"There's a checkup program for you tucked into Papa somewhere. Ask him to dig it out and give you a physical every so often, will you."

"Papa?"

"That's what he does, remember? Keeps things working. Do it, if you want the body to last the whole trip."

"Of course I do, but -- Papa? Poking around in my private person?"

"You're the last person on Earth... let me start that again. Since when are you coy about your body?"

"Can't I check myself out? Feel for lumps and... "

"Cut it out, Sylvia. Don't be a child about this."

"But that's me he'll be -- mucking around in."

Smitty tried to grasp what her problem was. He realized he wasn't strong in feminine psychology, and generally got around the weakness by pretending to himself that there was no such thing. Sylvia's reluctance, however, couldn't be got around that way.

"Okay, then help me. Why do you dislike the idea of Papa giving you a physical?" Put the ball in her court.

She paused to reflect on this reasonable question, then did her best.

"How well do you know Papa, his character?"

"A bit cranky, but you and Xiu seem to have him calmed down."

"You don't know him at all then. No matter how calm he seems now, Papa dances to his own music. He accepts me as a sort of defective peer. Xiu he recognizes as an elemental force that is beyond understanding but real, fearsome and to be obeyed utterly. With me so far?"

"Now Xiu's okay, I love the little bastard, but he has his peculiarities. He's a perfectionist of the worst kind. Nothing is good enough the way it comes. Everything could be improved upon, brought closer to the ideal. Well Papa's caught that bug. Identified with Xiu maybe, I don't know.

"It's fine with me if he rebuilds the navigation program or tinkers with the plasma configuration in the reactor. But I don't want him improving me -- my body. Try to imagine what Papa's idea of female perfection might be. Then figure out how I can do my own physicals!"

"Point taken. I'll get back to you on that."

"As they say."

"As they say. You're eight hundred and twenty miles out and so far everything's perfect. That worries me."

Sylvia watched through her viewing port as Earth's horizon, brilliant against the hard black of space, showed greater and greater curvature. On request Papa rotated slightly, to make the backward view perfect. She didn't feel like talking. Smitty was occupied.

On Earth the night passed in jubilation, with a seasoning of sadness for some. When the sun rose next morning, and after a couple of naps squeezed into heavy checking of unfolding detail, Smitty called with good news.

"I talked with Xiu about your problem letting Papa do physicals. Edited your reasons. He agreed with you that Papa probably would take the opportunity to redesign the body. Anyway the upshot is that Xiu spent half an hour laying down the law that your body is the holy of holies. He assures me that Papa will now maintain it exactly as it is, right down to the last broken fingernail and split end. Is that good enough for you?"

"Thanks, Smitty, and thank Xiu for me. I'll check Papa's feelings on the bod, but I expect that'll do the trick. You wouldn't believe how dazzling the Earth is from here. It's like a perfect opal hung in front of eternity. I've seen all the photographs, and they miss the... reality. The presence. It's sitting there looking so close you could walk over. And

it's dimensional like, oh, like a bubble suspended in perfect stillness. I've been looking at it all night, thinking that God or the Universe or whoever made Earth hung it out there just to show off. How're you doing?"

"Not so busy, finally. Launch Control's packed in and we're all back in the Complex just keeping an eye on what's happening out there. We'll be here on a diminishing basis, as you know, for six months. Then part-time until the accountants decide that the returns no longer justify. A lot of people say hello. They'll all have line time every day. I'm beat. Just sitting here with my shoes off."

"Is everything still a hundred percent with the Capsule? You said that worried you."

"Funny thing, there *was* a glitch. One of the access doors on the skin came open. Papa picked it up by himself and closed it a couple of minutes later and resealed it. So something did go wrong. And you know, as I think about it that took a load off my mind. A loose door for Pete's sake."

As Smitty talked on, Sylvia sat in silence at the window, watching her world go away. She was not ready yet to let go of that world. Only years later would the leaving be complete. A generation was left her, though she had no way of guessing this now, during which she and the lives she loved would stay touching. Not until star noise drowned out the last syllable of communication would she step away from her mind's window and take up the burden of time.

Now she listened and watched the paper horses, still tumbling from her toss, spread to catch the thin solar winds.

THERE IS NO WAY TO TELL PROPERLY OF SYLVIA'S THOUSAND-YEAR LOOP THROUGH SPACE. MUCH HAPPENED, BUT AS IN THE AGING OF WINE OR THE WEATHERING OF ROCK THERE WERE FEW EVENTS TO SERVE AS MARKERS.

THE CAPSULE, HAVING FOR ITS CARGO A COMPREHENSIVE COLLECTION OF C20 MATERIAL AND INFORMATION, SELECTED WITH AN EYE TO USE BY C30 HISTORIANS AND OTHER DELVERS INTO THE PAST, OFFERED LOTS OF READING AND VIEWING AND OTHER PONDERABLES TO HELP SYLVIA THROUGH HER LONG NIGHT.

AND PAPA, BUSY WITH HIS MYRIAD CHORES, MENDING, MAINTAINING, SOMETIMES MODIFYING THE CAPSULE AND ITS EQUIPMENT, CAPTAINING THE SHINY CYLINDER ON ITS CIRCLE COURSE BEYOND AND BACK INTO THE SOLAR SYSTEM, BECAME IN TIME IF NOT A BUDDY, AT LEAST COMPANY.

THE TWO ELECTRONIC ENTITIES ACTED ON WIDELY DIFFERENT DIRECTIVES. PAPA'S IRREDUCIBLE ORDERS, NO MATTER HOW HE MIGHT COMPREHEND THEM, WERE TO SURVIVE, ARRIVE, AND TURN HIMSELF AND HIS SHIP AND LOAD OVER TO APPROPRIATE RECEIVERS. APPROPRIATE WAS CLOSELY DEFINED, BUT THIS IS NOT HERE OF INTEREST. SYLVIA'S MANDATE HAD FAR SOFTER EDGES. KEEP PAPA COMPANY AND THEREBY STABILIZE HIM FROM THE KIND OF WHEEL-SPINNING WHICH SELF-DIRECTION FOR A MILLENIUM, IT WAS FEARED, MIGHT PRODUCE. SHE WAS ON THE MANIFEST AS COMPANION PROGRAM. ANYTHING SHE MIGHT CARE TO UNDERTAKE BEYOND THIS RESPONSIBILITY, DURING OR SUBSEQUENT TO THE TRIP, WAS LEFT TO HER GOOD JUDGEMENT AND WELL-FORMED CHARACTER.

THE TWO DID INTERACT, GENERALLY PRODUCING ANNOYANCE ON ONE SIDE OR THE OTHER. SYLVIA ASKED DUMB QUESTIONS,

REQUESTED NONSENSICAL ALTERATIONS TO THIS AND THAT, TRIED FROM TIME TO TIME TO BRING PAPA TO SEE AND UNDERSTAND HER LAUGHABLE FANTASY OF A 'REAL WORLD', AND OCCASIONALLY SHOWED FLASHES OF

GOOD SENSE BY ALLOWING HIM TO SHOW AND EXPLAIN TO HER WHAT HE WAS DOING AND HOW HE DID IT.

PAPA HAD NO PERSONAL SENSE OF TIME AS A FRAMEWORK FOR HIS OWN EXISTENCE. TIME FOR HIM WAS SIMPLY ONE MORE ORGANIZING

RELATIONSHIP BETWEEN EVENTS, LIKE DISTANCE OR ENERGY LEVELS AND CATEGORIES. THUS TIME CANNOT BE SAID TO HAVE PASSED FOR HIM EITHER QUICKLY OR SLOWLY.

ON THE OTHER HAND SYLVIA'S TIME WAS INESCAPABLE, AND DOUBLY HEAVY. SHE HAD ACQUIRED THE TIME SCALE OF HUMANITY WHILE SHE LIVED AS A HUMAN. THIS SCALE SHE ADOPTED WHILE READING AND WATCHING TAPES AND WADING THROUGH THE MASS OF HUMAN-DIRECTED MATERIAL HELD BY THE CAPSULE. YET SHE WAS OFTEN JARRED OUT OF THIS EASY PACE AND INTO HER UNDERLYING ELECTRONIC PERSONA, WHICH EXPANDED TIME A MILLION TIMES, MADE IT A MILLION TIMES LONGER. SHE COULD ONLY DEAL WITH PAPA IN THIS LAST MODE, WHICH CONTRIBUTED TO THE SLIGHT WASPISHNESS SHE BROUGHT TO THEIR CONSULTATIONS.

IT IS SUFFICIENT FOR THIS RECORD TO PASS NO COMMENT ON THE CAPSULE'S ABSENCE FROM EARTH OTHER THAN THAT IT WAS AS CONCEIVED, OF A THOUSAND YEARS' DURATION, AND THAT THE DEVICE SURVIVED INTACT AND IN GOOD REPAIR. ITS CREATORS, ONE IS ALLOWED TO HOPE, WERE SOMEHOW, SOMEWHERE, LET KNOW THAT THEIR EFFORTS CULMINATED IN SUCH COMPLETE SUCCESS.

CHAPTER 29

"How much longer, Papa?" Sylvia was so adept at turning Papa's response to this ritual query into years that she by now almost heard his reply in such units. This time she had to stop and do mental arithmetic, which came out five months and a bit.

The translated answer to her next question, "Where is the Earth?" moved her to the appropriate viewing port. "I don't see it" drew sarcasm. This she withstood silently, understanding that her eyes were no match for Papa's sensors and navigational reckoning. She didn't mind. She was five months and a bit from home.

The next while passed rather quickly. She was busy, which eats time greedily. The centuries of browsing, following this trail and that through the Capsule's archives and galleries and museums, had left things in a state any student would recognize -- messy. She racked and stacked and filed industriously in an effort to return the End Use Area to its beginning condition, but found herself in a quandary halfway through.

The original methods of filing and indexing were not very good. She had prevailed on Papa to cobble together improved storage techniques and locate/retrieve systems, which were now familiar, comfortable and extremely useful for her. Should she undo these improvements? Would they somehow screw up the people who would soon have to go past them to make use of the Capsule's material?

She conferred with Papa on this matter of conscience. He wasn't helpful, pointing out on the one side the many improvements he had wrought and the complete lack of misgivings *he* had thereby, and on the other side the iron law that what was given him to deliver must be delivered. He couldn't decide whether inefficiencies came under this law. If the Receivers (his term was different, being almost descriptive of Dr. Xiu and having overtones of fear and reverence, but she got 'receivers' loud and clear) were upset, everything would have to be put back the way it had been. If not no problem. She decided to stay with the changes.

On the day when she could actually pick out the point of light which was Earth, she encountered another problem -- what to wear. Not

what to select but literally what to wear. The EUA had been insulated and heated for her, an unauthorized kindness which had been well thought out. This allowed her to dress comfortably while she used the people area, which is to say in her own clothes. The insulated protective coveralls, designed to hold down bodily deterioration during her time in the space-cold rest of the Capsule, would have been unendurable full-time. And the twenty pairs provided would not have lasted the trip.

As things stood she had a couple of suits of ratty but not completely disintegrated coveralls, and precisely nothing else except the baseball cap she had entered the Capsule wearing and immediately put away as a souvenir. All the rest of the clothing she had carried aboard was long since dust and lint. She brought the matter to Papa's attention.

"I don't think there's any way to explain clothes to you, Papa. But I have to have some before we land. I'm not going to greet the Thirtieth Century in shredded coveralls."

Papa tried to get his mind around the concept. She suggested analogies such as the Capsule's outer cladding. He fabricated a seamless second skin for her, perfect to the fingerprints. She said no, clothes were things that were positioned outside the body, that could be put on and removed easily. He made her another second skin, somewhat larger and in four sections which could be bolted together.

She mentally reviewed the museum's contents, but there was no clothing. There was a treadle sewing machine, and she recalled that the library contained several books on dressmaking. Perhaps Papa could make her up some cloth. Her search for something that would serve as a model turned up not so much as a rag. Papa ran a well-housekept ship. She sighed at the distant memory of cotton prints, broadcloth, tweed, denim, even doubleknit polyester.

"This is ridiculous," she chewed at Papa, "you have to know what clothes are. Remember the very first physical you ever gave me? When you took so long deciding that what I was wearing wasn't a part of me? And zapped me out of my going-away wardrobe? What you zapped was clothes!"

Papa digested this for a little, then observed that she was due for her regular physical shortly, and should have it done now before landing procedures got him too busy. Still fussing, she agreed and propelled herself through the Capsule's inner crawlways and connection ports to Papa's shop. There she deposited the body in the locker which Papa had set up to do her overhauls, and retired to her mainframe. She had stayed with the body once while Papa took it apart and put it back together all renewed. Once was plenty.

In electronic limbo for the duration of the physical, she had no way of avoiding electronic time. The landing, so close now, held all her thoughts. What would the world be like? Would she be able to fit in as comfortably with C30 people as she had C20? Would this new world have others like her and Papa? Would it be all one super-civilization? Or would there have been backward cycles? Had anyone remembered the Capsule? Would they be expecting it? Who would it be handed over to? She made herself a note to check Papa's list of criteria for Receivers closely.

What language would they speak? Even if it were English would she still be able to talk with them? Or would she have to learn a whole new language? She hoped not. The rhythms and sinews and flow of her first tongue were soul deep. After a thousand years of steeping in the poetry, the literature, even the newspaper prose of English it was the very pattern of her thought.

She had experimented once, had tried thinking in German and Russian and three or four of the languages in which she was technically fully fluent. She found that this changed how she thought quite dramatically. Different grammars are different techniques for thinking, and different vocabularies give different contents to thought. English was far and away the how and what of her inner life. She hoped they still spoke something close.

Would the Receivers try in some way to hold her as a part of the Capsule? She smiled a tight little smile as she considered this possibility. They'd find out a few things if they tried.

"Fig leaves," she thought, "would whip together in no time. If I had a fig tree." Would the world be so electronic that she couldn't find her way around? Or would it have developed past the power uses of

electricity and leave her limited to a wireless, clipped-wing existence? Her mainframe would likely have to stay put in the Capsule. And the body had to keep in touch.

"Papa, can you think of anything you look after that's soft and flat?" After some discussion of soft, Papa declared the concept to be a part of Sylvia's fantasy.

She recalled the out-of-the-way places in the world she had visited, and how subsequent reading had so often come alive because of that tour. She wondered if there would be anywhere left that was still even somewhat untouched. Might there still be Shangri-Las in this world she was about to step back into, whose passes had remained uncrossable by the outside? She promised herself the finding out.

Nothing more would suggest itself to her as a possible source of clothing. If she were to paint herself blue, maybe? No, Papa would be at sea with either blue or paint. Maybe nudity had finally come into its own.

Papa notified her that the body was ready. She entered it and glided naked back to the EUA, picked up both of the two remaining coveralls, and checked them in the bathroom mirror. They hadn't improved.

"Papa, are you in contact yet? I want to talk to someone there as soon as possible." Surely she could communicate clothing sizes, and have something -- anything -- waiting for her to slip into.

"Not yet. I'm just monitoring to find out the situation. This part has to be done carefully, in order not to incur high-energy react programs." She interpreted this to mean they were approaching slowly and quietly so as not to panic somebody and draw fire. He had obviously been through this in practice somewhere along the line.

"When can I talk to somebody?" She was at the viewing port, watching the blue-and-white baseball that was Earth.

"Do you want to run this operation? When the conditions are satisfied you're scheduled to participate. Until then I have a Goddam lot to do." Buzz off.

Later, when the Earth had become a basketball, she asked again. Not yet.

She stewed at the caution, although she understood that Papa was in a programmed routine. His care in approaching Earth out of nowhere was obviously what Dr. Xiu and his staff had thought to be the wise course. Still she stewed.

When blue and white filled her port she took a different tack. "How far away are we?" Two thousand miles. "Well they're not shooting at us so it's got to be okay by now. Have you got in touch yet? I really do need to talk to someone about clothes."

Papa was in some difficulty. There had been no attempt from Earth to enter into communication with the now-orbiting Capsule. His programming and practice runs hadn't included this possibility. It was an area where he couldn't make decisions. Yet obviously he had to do something, stay in orbit or go on in. He bent his own rules to their limit and went down to twelve hundred and fifty miles.

Still there was neither challenge nor greeting. After several hours of this high-speed time-marking he spoke to Sylvia. Rather humbly, for Papa. "I can't make any Goddam sense out of things. I'm going exactly by the book, but the sequencing's stopped cold. There should be input at this stage. There isn't any. I'm stuck. Any ideas?"

"Umm. How's it supposed to go?"

"I can't proceed until there's input. Once the connection is made you take the interface and derive nav parameters so I can complete the dock program."

She digested this for a minute. "I think that means you have to wait until I can get on the line with them and find out where to land?" That was indeed what Papa meant.

"But they haven't contacted us yet?"

No they hadn't.

"Then we'd better call them, wouldn't you think?"

It had not occurred to Xiu that Earth might ignore or be unaware of the Capsule once it was within spitting distance. And so Papa had no programmed solution to the no-contact problem. Sylvia's suggestion seemed to him almost magical, and he quickly set her up with all the frequencies on board that could be tickled into carrying voice.

"Can you show me where we are?" Papa fed a moving ground map to one of the big screens in the EUA. Sylvia watched this until they began a pass over North America.

"Greetings to Earth. Hi there. My name is Sylvia, and I'm in orbit over you at about twelve hundred miles. Right now I'm above, oh, Maine, and moving sort of toward Texas. We have to talk to somebody who can tell us where to land. Please answer on any frequency. Over and out." She thought this was about the right tone, and leaned back in the bolted-down swivel chair which some bright spirit had fitted with a seat belt.

North America, in detailed graphics which were scaled to their altitude, flowed by on the screen. When by Cleveland there had been no response, she repeated her call. And again just past St. Louis. And passing by El Paso. There was absolutely no answer. In fact, as she checked up and down the Capsule's comprehensive dial, there was nothing on the air at all.

"Papa, are you sure this thing's working?" He was. "Well something's screwy and that's a fact. Keep sending. I'll try whatever countries we go over." She did this, using seven languages in the course of sixteen orbits. Without answer. Without picking up the trace of a transmission from below. Finally she admitted to Papa that his dilemma was shared.

"I can't figure it out. Find me a communications satellite and let's see if that tells us anything." It didn't because Papa couldn't find one.

"I have a sneaking hunch that we are from the stone age, Papa. And all our wowee technology is as pertinent now as good arrowhead-flaking would have been in the Twentieth." This of course made no sense to Papa at all, but she wasn't really addressing him.

"So how in hell do we get their attention and start talking?" All the science fiction she had ever read, subsection First Contact, ran through her mind.

"What sort of stuff do we have that we can wave at them? Lasers? X-rays? Notes in bottles? Hmm. Can you send something down on a parachute or a little rocket or -- I dunno. No, I didn't think so." She pondered on, seated before the screen.

"Okay, I vote that we look for someplace isolated and just land there. If nobody comes after awhile then we go somewhere else." No. Where they landed was where they stayed. The Capsule's coming-down capabilities would be thoroughly used up the first time. It had no getting-back-up capability whatsoever.

"We've got to land somewhere, sometime. Let's pick a likely spot and do it. Or did they have someplace special in mind?"

They didn't, but the suggestion made Papa very, very nervous. He felt they should probably just stay in orbit until something came along that would restart his stalled sequence.

Unable to face the prospect of even one more orbit of waiting, Sylvia brought pressure to bear. "Your job's not done, chum. You've kept us in good shape, and you've almost got us back, but no cigar. They didn't say get to Earth and orbit. They said get to Earth and land. You still have to park this thing on the ground. That's the law. I didn't make it up. But I am telling you those are the orders and you can't disobey them because things aren't happening exactly the way you expected them to." Papa reacted to this firmness with unexpected docility. She didn't know it, but when Xiu had given his last-minute lecture on the near-sacred nature of Sylvia's body, a little of the deification had spilled over onto her electronic person. There was a touch of awe in Papa for his Companion Program, which came bubbling to the surface now as she spoke with such... authority. A weight was lifted from his soul, a weight of responsibility he was utterly unequipped to handle. He almost wagged his tail.

"Give me the nav parameters and I'll finish the Goddam dock program." Where do you want me to put her down?

This sent Sylvia scurrying to a reader, where she called up an atlas and located Continental USA, Topography/Population Density. This she studied in electronic mode, because the choice would be a very important one and deserved full attention to detail.

What criteria? The Capsule should be close enough to a major population centre that it would be available to ordinary people as well as academics. Somewhere within bus-trip distance. At the same time it required a certain isolation. Papa assured her that the fusion-based power generator was safe as houses, but she had read enough of the popular press to know how nervous any kind of nuclear energy made people. And his unassisted landing system didn't fill her with confidence. If the Capsule pranged coming in, she didn't want any squashed neighbours.

Where then? Her personal preference was for a latitude in which the weather varied interestingly through the seasons. On the other hand there was no way of knowing what time of the year it was on Earth, and with only one shot it didn't seem worth risking a snowstorm or landing on an iced-over lake. Sun belt then. East or west? What would have become built-up while they were away? What would have stayed empty-ish? But proximate to a lot of people? Probably somewhere about... there. She gave Papa the coordinates for an empty-looking part of inland California. He adjusted their orbit to overfly this possible site, and went down to a hundred miles. At this altitude the fly-over was very rapid, but the two of them scanned at electronic speed, and were able to agree on an acceptable spot after three passes. Papa told her to stow the body for its own safety. She refused, and rigged up a cargo-net harness for herself at one of the after viewing ports. Papa checked this, improved it in a couple of places, and proceeded to go in.

The Capsule's outer skin was adequate for deep apace, but it wasn't up to a traditional slow-down-by-air-friction re-entry. Nor was the craft structured internally to take such a rough-and-tumble. On the plus side it had pretty well unlimited power to feed its thrusters. Papa simply slowed the craft down to full stop above the landing area of choice, and held altitude with the lateral thrusters. Then, poised a hundred miles up, he allowed the Capsule to fall at a leisurely rate, governing this with appropriately-applied thrust. He came down tail first, since that was where the largest thrusters were located.

At a half-mile he asked Sylvia to indicate exactly where she wanted to land. A touch bounced-around, and suspended in her sling, Sylvia squinted into the sunshine of the rolling semi-desert below. Watch out for flash floods was all she could bring to mind. "Over on top of that hill." She pointed, somewhat pointlessly. He was brought to understand her direction, and bounced the craft over, balancing on its tail, to a position above the hill. She checked again -- no buildings or wires. "Okay, down we go."

He settled the Capsule down as gently as a bachelor depositing a baby. When it was two or three feet up he played the lateral thrusters, pushing the cylinder into a topple, then catching it and easing it into full pronation, its whole length now within feet of the ground. His final manoeuvre rotated the craft a few degrees, until its internal floors and ceilings and desktops and doorways were in accurate tune with gravity.

This done and checked, he ever-so-gently set the craft onto the baked earth of the hilltop. When he removed all power to the thrusters the Capsule settled, rotating slightly out of true. There was a symphony of creaks and groans as the new stresses of gravity were divided through the structure of the Capsule. Then all was still.

Sunshine poured through the port as Sylvia disentangled herself. Free, she pushed off toward the EUA and crashed heavily to the floor. "Gravity," she muttered, "think gravity."

The exit port was a problem to locate now that she was afoot rather than floating. Walking itself took concentration. At length she made her way to the main exit/entrance by the EUA, noting a little ruefully the odds and ends she had somehow not managed to put away or lock down. She tripped over most of these items in the near-dark. At the door she had to call Papa.

"Open up, I'm here." Nothing happened for a minute. She heard him being profane. Then the door cracked to let in a sliver of sunshine. After another pause it creaked again, hesitated, then swung open, protesting all the way. This was the front door to the Capsule, double width and tall, intended to accommodate busy in and out traffic. She stepped to the sill and looked out on Earth, her thousand-year exile at an end.

First she tasted the full afternoon sun, spinning on one foot to let her whole body share its warmth. Then she held onto the doorframe and leaned out as far as she could to look around. She had certainly succeeded in avoiding people by choosing here to come down. Nothing met her eye but low scrubby hills as far as she could see. Not a power line or fence was within sight.

"Put down the stairs, will you Papa." He obliged by sliding these out, six steps which remained floating by a couple of inches. Looking both ways, Sylvia descended to the ground. She was wearing the carefully-preserved baseball cap and nothing else. The ground, baked hard and supporting only sparse, low vegetation, was hot to her feet.

She walked the length of the Capsule, which seemed longer and fatter than she remembered, and peeked around the nose. Half expecting to meet a cowboy or prospector, she belatedly recalled her nakedness. But there was no one, just more low hills receding into the distance, with mountains away off at the horizon. On this side appeared no sign of human presence either. No power lines, no roads, not a shack to be seen.

She completed her circuit, re-entered the Capsule, and put on one of the dilapidated coveralls. Somebody would be around to check on this heavenly visitor pretty quickly, and ragged was better than nothing at all.

"What's on the radio now?" she asked. Papa took a couple of minutes to complete his frequency sweep before answering. "Nothing. Not a Goddam thing. There's something wrong. We shouldn't have done the dock yet. I knew I should have waited for the Goddam input... "

"Papa, stow it." Sylvia shut him up. "You keep listening and I'll take a walk and see if I can find a phone or a highway or something." He grumbled but agreed. "And keep a beam on me. I can't stay in touch by satellite, remember." She set off, after picking out a route that would let her maintain line-of-sight.

Two hours of slow going through the empty scrubland brought no telephones and no highways. She looked back at the Capsule, a shiny lipstick tube atop its hill in the distance. Ararat she thought, then shoved the allusion out of her mind hard. The way ahead was stopped

by an arroyo which she could trace for some distance both left and right. Unable to proceed without losing her visual line to the Capsule, she turned and began trudging back.

"Well?" asked Papa as he noted her reversal of direction. "What have you registered?"

"Don't see a damn thing except more of the same. I'd have to say we overdid the isolation a tad." Back at the Capsule she repeated Papa's check of the airwaves, with his equipment and then using her own internal receptors. Still nothing. Papa fussed at her. She had waved authority at him to get them into this pickle, now she had better get them out.

"Well I can walk some more if you like, but this is pretty wild country. I don't think I can get far enough to do any good. Can you move this thing at all? You said there was lots of power."

Papa considered this carefully. It was a challenge, and in his domain. The Capsule had plenty of thrust fore and aft, but the laterals were relatively puny. He did the sums several times, in several ways, improvised rather brilliantly, he felt, and answered "Maybe."

"How high up can you get?"

He redid his calculations. Sylvia had to work out his answer. "Sixteen inches? That's dumb! If you can get sixteen inches off the ground, how come not sixteen feet? Or sixteen miles?" Papa didn't bother trying to explain the physics to her. "What if we lighten the load?" This was an absolute no-no. "If I got out and walked?" No difference. "Okay, give it a shot."

Befuddled as he was by the unforeseen factors which now surrounded him, Papa agreed to try. Sylvia walked off several hundred yards to watch. There was a roar and the Capsule disappeared in its own dust storm. "I can't see you. Are you off?"

Papa checked. "Yes." This with triumph in his tone.

"How high?" The answer came to something over four feet. "Great!" said Sylvia. "Let me in and we'll get going." This brought grumbling from Papa. His nav program was quite useless at such an altitude.

Sylvia re-entered and found her way to the most forward viewing port. "Okay, you drive and I'll steer you." Unable to improve on this arrangement, Papa gave his assent and restarted the thrusters. Over their whining roar Sylvia could hear the Capsule's internal stresses rearranging themselves with considerable complaint.

"Are we up?" Yes. "Head west, toward the sun." Papa did so. The Capsule, in its own dustbowl, realigned itself ponderously. Then Papa tickled his whole battery of thrusters, all aimed and powered to achieve levitation, to the end that the craft began slowly to move forward. He calculated that this cost them a third of their precious altitude, but they were still off the ground.

"Damn!" Sylvia complained. "I can't see much for dust. Are we moving at all?" Papa estimated their speed at (in translation) around three miles an hour. "That's it?" It was. She sighed. "Boy, are we going to look ridiculous. Okay, Papa, keep your heading and pour on the coal. I'll stay in the wheelhouse." This required a second, less allusive, iteration. He poured on the coal and the Capsule inched its way toward the sea beyond the sunset.

Sylvia stayed at her port through the night, scanning the distance more than the dust-shrouded foreground. She was looking for lights. Headlights to indicate a road. A glow that would mark a town. Any kind of light. She saw nothing.

When the sun arose behind them the terrain was changed somewhat. The hilly nature of their landing spot had smoothed down, and there was more vegetation, even an occasional cluster of little trees -- alders and poplars. Peering through the outrolling dust cloud she could make out the way ahead to within about a quarter-mile of the lumbering Capsule. High above the ground she felt like a, what was the word? Like a mahout, an elephant driver.

There was still no slightest trace of habitation. She said nothing to Papa, who seemed easier in his mind now that he had something to do.

Morning passed into afternoon. She saw wildlife from time to time. Deer, what looked like a group of horses, a few cattle. No people. No

roads. No houses. Not a contrail in the sky. "How much longer?" asked Papa.

Sylvia focussed toward the horizon, looking for signs of the ocean. Not yet. "Awhile," she answered, "we're getting there."

Night fell again without the Capsule having arrived anywhere significant. The moon was bright enough that Sylvia felt confident she could keep the craft out of trouble. The ground was treed now in places. She was an active pilot through the night, directing Papa to the left and right, pursuing clear flat land to avoid grounding the Capsule which, despite her care, rubbed against a tree or a rise every so often.

When they came to a river she followed this until it turned the wrong way. By the second morning she calculated they should be close to the coast. As the light grew she saw that they were indeed. The Pacific was no more than two or three miles ahead.

Getting there was tricky. The ground wasn't really level enough for the Capsule to traverse with any comfort. And there were a lot of trees. But she got them to the oceanside by noon. Still there was no sign that the planet was inhabited by the human race. She tried to guess what kind of civilization or lack thereof had evolved to leave this real estate so unoccupied. This was all too strange.

"What now?" Papa asked, more sensibly than was comfortable for the puzzled, rather lost Sylvia. Where was the coast highway? Were there no more cars? She'd seen nothing flying except birds. The Pacific was serene and empty. There was still nothing on the radio. She couldn't find a trace of power lines. What the hell was going on?

She directed Papa along the shore until there appeared a usable depression in the headland. Into this they descended, and down it to the water.

Papa was confused by the change in terrain from hard and lumpy to fluid and regular, but accepted her direction to move the Capsule out onto the water. This was an improvement, for the thrusters levelled the ocean's surface most effectively, and they were able to pick up

speed to perhaps five miles an hour. Sylvia headed them south, and kept her eyes peeled as the coast moved slowly by.

Four days later she told Papa to turn toward shore, where the broad, flat beach promised easy going. She had him set the Capsule down above the high water mark, at a spot where driftwood wasn't a problem.

"Input?" asked Papa. "Can I get back into sequence soon?"

Sylvia looked inland at the lovely semi-tropical landscape with its clumps of palm trees breaking above the dense foliage and leaning here and there out over the pristine sand. She calculated, by ongoing reference to her atlas and with the assistance of thousand-year-old but still clear memory, that they had arrived at Santa Barbara.

"I don't think so, Papa," she replied, "I don't think we're going to get back into sequence at all. I don't think there are any people left."

CHAPTER 30

They moved to higher ground, a half-mile from the beach, to give Sylvia as large a line-of-sight yard as possible. Papa was despondent to the verge of depression, with no prospect of continuing his sequence, and having nothing to replace it as a reason for going on. Sylvia, with her own heartache at this jolting conclusion to a thousand-year anticipation, yet recognized the danger in Papa's state of mind. She understood that being busy would offer at least temporary salvation for them both, and arranged a lot of bustle.

From their position at the top of call it a rise rather than a hill, she could make out what she thought might be traces of the city which had once spread around them. The prospect put her in mind of pictures she had seen of Central and South American jungle ruins -- humps which could turn out to be ruins under the green, straightish lines in the undergrowth which might not be natural. She itched to be off looking, but realized that Papa's mental health needed her first attention.

She put it to him as an interim sequence that the Capsule, its contents, and the two of them had to survive the situation they found themselves in. It was unexpected, but the underlying directive hadn't changed. Survive, arrive, deliver. They had survived, they had arrived, now they had to do everything in their power to remain in condition to deliver. Don't ask to whom, or when, just follow the rules. He turned this around in his mind for awhile, and ended by accepting her logic. But he couldn't just sit there, helpless and useless. She found him challenges.

"You're going to have to come out into my world, Papa, like it or not, believe in it or not. This whole area has to be cleared and covered with something to keep us from being overgrown. You've got the power and the engineering smarts. Figure out how and do it."

She herself solved the line-of-sight problem, at least partially. She had used a wire once before to stay in touch with Papa. Now she rigged up a very fine wire to unroll behind her as she wandered off to explore. This kept her body and mainframe in excellent contact, but the unrolling and rolling up again was a pain in the neck. Papa put together a rewind reel at the Capsule end, which let out and took up

as she moved around. She had to be careful only that she retraced her steps coming back. The wire provided signposts for this.

And Papa got right into civil engineering once he grasped what was being asked for. He revamped several of his maintenance robotics to work independent of their accustomed tracks and grids, and under wire-free direction. These he had scuttling around, first scouting topography, then taking an inventory of materials. Sylvia was delighted to watch their progress as she returned from her daily sorties.

Little by little vegetation was cut back, rooted out, burned (her suggestion). When several acres were down to raw dirt, this too was gone at by the busy little robotics. She explained overburden and bedrock to Papa. He removed dirt and sand and gravel and loose stone tiny scoop by tiny scoop, and dropped this beyond the perimeter of his selected site. Sylvia soon had to request that passes be cut through the piled-up material.

The first day it rained was traumatic for Papa. His robotics couldn't move through the mud. Their arms and extensors and tools clogged. One of them shorted and had to be dragged inside by its companions for cleaning and repairs. Sylvia made what suggestions she could, but in the end Papa himself came to grips with water, both for the devices and within the Capsule where condensation was a problem. A little silicone grease here and there, a little heat, a little ventilation, and he had everything in hand. He was becoming almost cheerful.

Sylvia discovered quickly that her Mayan-ruins impression was correct. There had been a city here, and its remnants were easy to make out. No buildings remained as such, of course, but the regularity and order of the many mounds was unmistakable. In some places, where a tree had uprooted or a slide had laid open the face of a mound, she could make out straight lines and right angles which signalled concrete or cut stone or brick. Without a bulldozer she had no hope of excavating. From what she could see there would be little point in trying. This was rubble pure and simple, from which anything of use or interest was unlikely to be recovered.

She ranged around the Capsule as far as her wire would allow, and found nothing from which she could derive any clue as to what had

happened. Overgrown and decayed as it was, the city showed no indication of cataclysm. There were no fissures in the ground. There was no blast pattern. Just growth and decay, each accelerating the other.

She needed to get beyond her wire mile, a long way beyond. Was it like this everywhere? Somewhere, she knew with utter certainty, there were descendants of the survivors. She had left six billion people behind. How many there were now, where they were, what their condition might be, she couldn't guess and didn't try. But there were people, and she would find them. This was sure.

Papa's elves had scoured the site down to bedrock by now, in a circle bounded by an impressive mounding of what had been removed. Now that they had got down, they were coming back up. Papa had set up a little shed outside the Capsule, to which the robotics brought scavenged and hacked-out pieces of rock -- fieldstone, beach stone, whatever was available. These were neatly cut and shaped on the oxygen-hydrogen torch Papa had devised, then trundled off and set in place. The site was growing upward now with unending accretion of these little building-block bits of stone. Sylvia was entranced at how closely they were fitted, how immovably each was interlocked with its neighbours. She judged that Papa had this task well in hand, and proposed another.

"I have to be able to travel to anywhere. That's the only way we're going to find people and get the sequence going again. The satellites are gone, and I can't get any further on wire. We've got to get me fixed up so I'm not stuck in this one little part of the world." Awhile later she added to the order. "And think about transportation if you will. I can't walk. And energy. Sunshine isn't enough, and there's nothing else left I can use. Okay?"

CHAPTER 31

In her brief fling at being a world traveller, so many centuries ago, Sylvia had through necessity or curiosity tried about every means of transportation and locomotion known to man. But man had never encountered Papa, whose tenacity, ingenuity and unworldliness now offered, in response to Sylvia's request for mobility, something really new under the sun.

As he had done for the satellites, he cannibalized the Capsule itself for a basic mechanism, a small thruster. And Sylvia's transportation, like the satellite vehicles, had an O/H torch as its power source. After these common beginnings the two devices went in different directions.

The satellites' thrusters were discarded, in fact kicked away, long before final altitude for the stationary orbits. Sunshine then powered positioning and ongoing operation. Sylvia's -- she didn't know what to call it. Vehicle? Thing? -- gadget gathered and separated water vapour on the run as it were, using some of the tremendous energy of O/H recombination to keep its tanks full. The rest became thrust, the direction of which depended on the positioning of a simple triad of ports.

The gadget had no hand controls or instruments. Sylvia's control was much more direct. She thought it up or down, forward, backward, left, right, fast, slow, dead still, off or on. It reminded her of the big brother to an old-fashioned round washing machine, with a chair where the agitator should be, and a bubble over the top to keep off the birds.

In operation it recalled to her memory one of those hovering air-cushion vehicles that could skim over land or water. Except her machine could go straight up almost forever. On her first demo drive she had ascended some twenty-two thousand miles, to one of the satellites. This taught her at least that the gadget could run out of gas. It was sputtering by the time she was back down to where it could gasp in a refill of water vapour.

"Papa," she told him after this ride, "you're a genius, it really works. And the satellites are better than the old ones by a mile. You should have stayed in the Twentieth and got rich!" He had learned by now to

nod at but otherwise ignore mysterious utterings of this sort. He nodded, and got back to construction.

CHAPTER 32

She quickly learned to favour dry climates and smaller centres, where time had been slower in erasing the memory of humankind, and gravity was less destructive when it brought down untended buildings. She had been amazed that a coastal metropolis could be ground so fine. And they all were, from Tokyo to Rio to London to New York. The mills of time and the elements seemed to work to a principle. The higher, the more ambitious, the more monumental a structure, the more complete was its final obliteration.

Conversely she discovered smaller buildings, in isolation and favourable climate, that were so intact they sometimes still had roofs. She scouted these exclusively after her first quick tour of capitals and metropoli. She was no longer searching for people. There were still places to look, but she had little optimism left. Now she was driven mainly to find out what had happened.

She never did find all of the pieces to the puzzle, but enough there were that she could make out the overall picture. It had happened in a very short span of time. Three generations, she figured with considerable physical evidence to support the estimate, was how long it had taken Homo sapiens to become extinct.

There had been disease, from nature or the laboratory didn't matter, of several kinds. One had simply killed, and spread like the common cold. Another, milder but less kind, had come and gone almost unnoticed, and left sterility behind. A third attacked man's final defence, his mind, interrupting reason, scrambling emotion, shredding memory.

There had been botanical blight, again of undetermined origin, that had emptied the granaries and root cellars and rice bowls of the entire globe. There had been cattle and pig and poultry disease. There had been a change to marine crustaceans which rendered them mortally toxic. There had been reverberations through the oceans' food chains which emptied nets everywhere in the world.

And as these blows were being rained on man's head he had added blows of his own. Communication was severed, borders were closed and locked, embargos were imposed. Movement of people and goods

came to a stop. Guns were fired to keep out contagion, to hold the devil at bay.

The islands became tighter and smaller as death advanced and understanding retreated. There were double-defence wars, cleansing wars, wars as a last means of holding discipline. Somehow the final insanity of nuclear conflict was avoided until it was impossible -- the systems and technologies needed were no longer in place once their operators and overseers had been sufficiently thinned out.

For Sylvia the end of the story was the most terrible part. Some had survived, had kept their sanity, had withstood the maelstrom, had found or invented food, had held firmly onto their will to come through it all. These had lived on, rebuilt a semblance of life, seen that the devastation was finally done with.

At last daring to hope, they had formed into desperately meagre little groups and set out to refill the Earth. Their children all experienced a mild disease, a variation of mumps. These children had no children, and were the last people alive in the world.

She could find no indication that any of this final generation survived into the Twenty-Third Century. All had been still for eight hundred years.

CHAPTER 33

That she had been away for more than three years shocked Sylvia. Had she been asked she would have guessed six or seven months. She'd needed the time, though, to make absolutely sure that there wasn't a pocket of survivors somewhere. For a long while this had been an article of faith, that mankind was somehow tough or imaginative or lucky or worthy enough to have held on. Variations on a scene had played through her imagination where she found the few, perhaps regressed to primitive, and nursed them back to their proper condition with the Capsule's bounty. With knowledge. With pride in what they had been. With love.

She had not revealed her findings to Papa during this time. He was busy with undertakings and improvements, and quite content to leave the burden of sorting the situation out to Sylvia. The three-years' absence had in one way been most useful, for in this time Papa had at last come out into her 'real world'. Her need for his practical assistance, linked with his need for something to keep busy with through the frustration of this incomprehensible situation, had forced him to exceed the intentions of his designers.

In her absence he had completed the task she left him. She returned to find a perfectly round, dead flat plaza, solid as bedrock, quilted together from cobble-sized stones. This rose twenty feet above the surrounding undergrowth, with an earthen perimeter graded smoothly down to ground level for perhaps three hundred yards, this already green with new growth.

Papa had a dozen of his robotics working outside now, many with obvious adaptations for their new labours. He'd cut two roads straight out from the plaza, paved with somewhat larger but similarly interlocked blocks of stone. One led to a low building of strangely-familiar design, perhaps seven or eight hundred yards away. The other she found was some four miles in length, the path to Papa's quarry. She'd been in contact, and as he discussed his efforts had suggested that he look for a better source of stone.

The little building he hadn't mentioned, saving it for a surprise, or possibly not being sure it wouldn't be laughed at. Sylvia checked the library before commenting.

"Papa, do you know that you have discovered the arch and the barrel and groin vaults in your very first fling at architecture? You are fantastic!" When this was explained to be complimentary he almost sounded pleased.

"Your Goddam world isn't so freaky after all, I guess. I needed more workshop space for the robotics. Go have a scan if you like." She accepted his invitation, and was dutifully impressed at the neatness and solidity of the design and workmanship. Then she was tactful.

"I'd love to see what you're doing in the shop, Papa, but there's not much light. And the doors are a touch low." She described windows and explained human scale, then had an inspiration.

"If you've invented this just by pure thinking about it, why don't I get some engineering and architecture textbooks and give you something to really get your teeth into."

Textbooks and teeth paraphrased, the idea seemed good. Papa was never going to be able to read or in any way handle human language, but mathematics and design were his forte. And these were no problem to transpose from a reader screen directly into his terms and input capability. In effect he was soon 'reading' all the graphic and mathematical material in the texts Sylvia looked up and listed for him.

This was temporizing, busy work to put off the moment when she would have to tell him that the sequence would never be completed, because there just weren't any people left for him to make the delivery to.

Her formal rationale to him was that everything had now reverted back to the 'survive' section of his original orders. But survival on Earth, under conditions so different from deep space, required a whole lot of new tricks. He was going to have to reprogram himself most thoroughly if he was to succeed in keeping the Capsule's contents in proper condition to be handed over, when this should finally become possible.

Although it made no sense, she found herself acting out the fantasy alongside Papa, working with him to save the cargo from this vastly more active environment. Entropy was at hand here with many new

agents -- gravity, the chemistry of air and water, temperature changes, and above all life, animal and vegetable, microscopic on up to big invasive lumps. She decided that the Capsule had served its purpose and was now a liability.

"Papa, we've got to move. The Capsule doesn't work here. It's already in lousy shape. There's *things* living in it. It's all dented and scratched, and the skin's starting to corrode in places. You can't look after it properly with so many robotics working outside. Half your shop's already moved out. You've taken out thrusters and cannibalized stuff, and what's left of the Capsule isn't going to be able to take care of all our goodies for much longer.

"I think you should build a new Capsule. We need a place that's made to work here, on Earth. We can't keep on living in a grounded spaceship. Can you do that? Can you handle that sort of problem?" She knew Papa well. "I'll help with the End Use Area because I know about people. But you'd have to work out the rest. What do you think? Is it possible?" It wasn't at all sporting. She had him.

The seagulls of Santa Barbara were in heaven, until their relatives from up- and down-coast got word of the new bonanza and arrived for their share. The robotics ignored these clouds of swooping, squawking scavengers as they cleared away centuries of undergrowth down to bare earth, and then sieved the earth itself of roots and stones. The gulls took care of grubs. Smaller cousins danced between them, underfoot and squabbling amongst themselves, cleaning the dirt of seeds and insects and other edibles.

Fires burned steadily as uprooted jungle was gathered in heaps and torched behind the advancing robotics. The ashes were distributed and harrowed in. Sylvia directed this activity personally, carefully. These were her robotics. This was her garden and experimental farm and busy work. She liked the seagulls. They helped her feeling that what she was doing was a part of nature, that she was going with life finally, no longer huddling and protecting against it. She walked her growing acreage now, because overflying distanced her from it. The good earth had become her love.

Papa was a demon, tireless and unstoppable in his purpose, fully challenged at last. As he studied he couldn't wait to put new

principles and formulae and designs to the test of real-world application. As he cut and fitted stone and steel, raised and pierced and braced and overcovered walls, shaped and connected interior space for a thousand uses, he constantly met problems solved by master masons millennia in the past. And tore back to the library to look up their solutions.

Much of what he was doing was in his head, fluid and flexible and available to pragmatic alteration and rethinking. He had an overall plan, however, that Sylvia had participated in and which he hewed to as the work progressed.

The power plant, for example, should be away from everything else. So he chewed a permanent home for it out of the living rock of the quarry. Then, recognizing that it should be proximate to the ocean, for the huge needs of the desalination and mineral recovery projects down the line, he found another promontory of bedrock and prepared a second site by the sea.

This done, and steaming away at the delicious difficulties of finding and emplacing interim power, dousing the fusion flame, taking apart half the Capsule to remove the reactor and its peripherals, transporting, rebuilding, housing, restarting and reintegrating the power, at this point Papa had to stop and build Sylvia a barn. The Capsule's botanical material had to be moved to a proper storage facility right now. She had a picture he could work from for the design. And she knew exactly where it should go. So Papa suspended power plant for awhile and built her the Great Coxwell Tithe Barn out in the middle of the north field. With some interior improvements to accommodate the robotics.

Sometimes the fantasy failed her. As, when moving seed to its new storage bins in the barn, she discovered a slip of paper that had been unnoticed in a container-full of peas. It was a seed packet, fragile and darkened to brown, but with its printing still legible:

SHAKER SEEDS

early

WASHINGTON PEAS

For early use, soak the seed in water 24 hours; sow (during the month of April) in good soil, in double rows, 6 in. apart, and 4 ft. between the rows. Cover the seed 1 to 2 inches deep.

L.B.

NORTH CORCORAN, MASS.

At such times she couldn't bear the sight and sounds of Papa's upwelling buildings or of her fields being tended by careful little metal gardeners. She would walk, into the forest or along the shore or beyond the quarry into rock desert, anywhere that had no mark of bustling mindless survival on it. And when she had found separation from what she and Papa were doing she would sit or lean and become very still, allowing memories of a world full of people to come out of hiding and play. She couldn't weep, but wept nonetheless.

Time wasn't a factor for Papa. His clock showed only where a task was on the road between inception and completion. It is now twenty to testing the library building power feed. It's just after starting the communications tower. It's half of finishing the foundation for the cryo pumphouse.

If he had an imagination, and Sylvia was sure she had caught glimpses of one, it was locked away and out of service for the twenty-plus years taken in building the new Capsule. The buildings grew, intersecting each other, crowding out and stealing part of Sylvia's orchard, climbing up onto one another, folding back on themselves, Escheresque from one angle, Gothic/Deco/Baroque/Palladian/Meso-American from another.

As the buildings spread and coalesced across and beyond the stone plaza, the Capsule diminished. Section after carefully sequential section was removed, hurried to its new and improved home and reinstalled, bolted down, plumbed, wired, connected, turned on, tested, refurbished and even rebuilt where needed, and at last left at rest, ready and renewed for its ultimate purpose. To be received.

Sylvia had played her part in this stonemason's encyclopedia. The new Capsule, like the old, had about a third of its volume dedicated to End Use Area. All of this was walkaround space, in which the intended ultimate users could draw from the stored materials, and make use of them on the spot.

The library, for example, had its book-cubes stored out of sight somewhere, safe and untouchable. The user would make his selection at one of the readers, searching through a displayed index until the required volume was located. Then the book was called up and displayed on the reader's screen, its pages turned at discretion, and when finished with refiled automatically.

The museum was set up as a well-lit gallery, with temperature and humidity control and appropriate protection for damageable exhibits. Sylvia had taken charge of the seed section, and had her barn as the facility for these. When this worked out well she asked to have the Cryo section built next to the barn and away from the main complex. Papa balked at this second severance, but she had leverage, because he wanted an acre of her agricultural holding to widen the plaza. She got the Cryo section, although he held onto its maintenance and operation.

Their mainframes were built deep inside the primary building complex, quite unavailable to anything except the agile little robotics in whose care they had always been since before Departure. Papa remained essentially an electronic being through all of the rebuilding. He used the thirty or so rebuilt robotics as eyes and ears and, despite Sylvia's frequent suggestions, never really considered taking the last step in his self-reprogramming and joining her in the outside, physical world. He never did see his work, not in her sense.

As the buildings were completed and filled and got working, the Capsule dwindled and diminished. Its hide was peeled back, removed,

reworked or stored. The frame was dismembered to open way for surgical removal of large organs like thrusters and mainframes and the power plant. Bits and pieces of plumbing, cradles, hatches, anything that could be reused as it existed was removed, checked and reinstalled in the buildings. Even the main door and its stairway were incorporated to serve their original purpose.

Papa's workshops, a separate cluster, grew quite sizeable as he added to his going-in repertoire of service and repair and fabrication capabilities. One day he had the last bits of skin and girder from the old Capsule, now surrounded on three sides by turrets and buttresses and curtain walls of finely-fitted stone, cut up and taken to the material warehouse at his shop. The robotics trundled away like a line of waiters, each bearing its flap or length of I-beam. One remained, with a broom and dustpan, and whisked away at the last dust of the Capsule.

Sylvia watched this little bit of symbolism, then walked to the open edge of the plaza and looked out at what she had done to keep the Capsule's mission alive.

Her beginning thought had been to use open soil discarded from Papa's early excavation to plant some of the questionable seed. If it was viable after such a lengthy sleep it would grow and give her strong new seed as replacement stock. If not, why waste the storage space and attention?

Everything grew, one seed in two or one in a thousand. Tomatoes and eggplants and radishes and sweet corn. She read the books and made herself competent in the arts of the gardener. Seed recovered and put away from her first crop, she borrowed robotics and got serious about the next. More land was cleared, properly this time. Drainage and irrigation were built in. Twenty kinds of seed were planted. And cultivated and thinned and banked and watered and the seed finally harvested by her mechanical fieldhands. Again the replacement of suspect old stock with healthy new seed was a resounding and encouraging success.

Season by season, year by year she had increased her planting. Trees were grown to seedlings in a little greenhouse, and set out four and eight and a dozen at a time in their own orchard/arboretum. Flowers

had their own fields, with beds and banks tucked into any other usable corner or pathside.

The grasses and grains were sown in meadows cut into the surrounding forest. Berries had their domain, and vines. Companion planting was a principle she quickly employed with expertise, and the clustering of flora from the same parts of the world.

She broke the initial level order of her fields as experience and understanding grew, putting in trees here and there, cutting hedgerows and sowing them with carefully-selected wildness, hauling in rock and gravel and digging wet places to provide proper niches, incorporating bits of the surrounding subtropical forest itself as an appropriate environment.

Papa drew the line at ivy on his buildings, at biological incursion of any kind. He had robotics whose only job was to keep down cobwebs and sweep out beetles and fieldmice and dandelion parachutes, and chase pigeons and squirrels. That sort of thing was all right for Sylvia to mess with, but its place was not in his new Capsule. Sylvia planted the ivy to grow up her Cryo building by the barn.

Standing now and looking out over her vegetable kingdom, with the sweeper behind her finishing its chore, she felt the panic that had been pushed into a dark closet in her mind for twenty years begin to thrust forward again. Papa had met his challenge wonderfully. The solid, durable structures all around her would last and last, and hold everything in readiness. But it was done now, and the question would begin to be asked again. When?

And her work with the seeds couldn't be extended. The bins were full of strong new life, the garden was healthy. What now? What activity could she invent to paper over the uselessness of it all without people?

She strolled down to a lacy stone gazebo set, in a blazing quilt of rose varieties, over a well and its pump. Sitting in the warm shade she watched birds coming and going and carrying on daily life in the hedgerow beyond the roses. A hum of working honeybees was in the air, and behind the hum cicadas and crickets and a dozen kinds of bird added their instruments. She watched an ant march up one side of the stone railing, over her hand without breaking its straight line,

and down over the other side, to reappear a minute later and start its circuit again. She brushed it off to the ground, disturbed at its stupid, pointless determination.

"Papa," she said silently, "I'm tired of this game. I think we should pull the plug."

Papa checked all the robotics to be sure they were occupied and wouldn't get into trouble, then gave his full attention to Sylvia. He knew what she meant by pulling the plug, and recognized in her the dysfunction she had corrected in him -- depression she had called it. Well if she could help him past his stalled sequence, perhaps he could do the same for her.

He tried to work up her logic patterns -- to put himself in her mind. Her work of making true copies of some of the cargo seemed to be at an end, this was what was bothering her. Hmm.

"Sylvia, that's Goddam stupid. Half the biological material still has to be replicated and I can't work with the Goddam stuff. Get off your Goddam duff (translation) woman and get on with it. Replicate. We can't turn over damaged goods."

What he was saying didn't click with her for a moment. She had regrown every last damn seed on board. What was the silly bugger talking about, half the...

"You mean the stuff in Cryo?" That was exactly what he meant. "That's a different kind of seed, Papa. It's all animals. You can't plant it in the ground and water it and get more seeds. Whole other ball game."

"So it's a challenge. Big deal."

"No, you don't understand. You have to have all the animals already before you can use the Cryo seeds to breed new ones."

"Don't you know how?"

"Of course I know how. Sort of. But bull semen's no use unless you've got a cow to start with."

"What's the wall around field S17 for?"

"To keep out the deer and... wild cows."

"So what are you telling me about no Goddam cows?"

She couldn't separate the heifer from its mother, and the robotics were useless, having all they could do to dodge the bull, let alone shoo the scrawny, panicked heifer in the right direction, toward a prepared rope net. Sylvia swooped between the two athletic females again. They turned in opposite directions. She stopped between them, three feet off the ground, waving her cap and hooting. The bull charged.

She had to dodge straight up. The bull stopped, then galloped off to get out of her hot downwash. She came down again and headed toward the heifer, waving and hooting. It took off, in the right direction this time. Sylvia followed, swinging left and right to keep the animal aimed at the net.

One of the robotics, confused, jumped in front of it waving a toolfull of palm fronds. The heifer veered. Sylvia swore, and accelerated to overtake and redirect the young animal. As she succeeded in this manoeuvre the cow caught up with things and joined her daughter.

Snap! the robotic in charge of springing the trap sprung it, catching one leg of Sylvia's washing machine along with heifer and mother. At this point, as she tried to jerk her craft free of the net without braining one of the bucking animals, the bull arrived.

Sylvia's response came from nowhere and surprised her as much as anyone present. She opened her mouth and reproduced a sound she had heard in a movie once, the enraged bellowing of a herd of attacking elephants. At very high volume.

The bull stopped cold. The cow and heifer stood motionless. Sylvia disentangled and rose into the air. She bellowed again. The bull turned tail and headed out at full speed. She set down, got out, and walked over to check mother and daughter for security and damage.

Papa, monitoring all this, mentally nodded to himself. The depression seemed to have passed.

CHAPTER 34

Sometimes she preferred her zinnias and tomatoes. Over cows certainly, and sheep and chickens. Pigs, now that was a different story. For pure brains and character she had to put pigs into a whole other category from the rest of the barnyard. Hers followed her. Not because she fed them -- she didn't except the occasional runt who couldn't muscle his way in to lunch.

Pretty well all the animals she had developed from wild moms and blueblood dads-from-the-freezer were on their own in the eating department. They had their fields and shelter provided, water was arranged, sometimes a salt block or treat from the agricultural excess was supplied, but not regularly enough to develop dependence.

She visited with them all, gentling out the streak of wildness many carried from the maternal line. They were enclosed, for their protection and to keep her breeding programs in some kind of order. But land was cheap. The enclosures were large and seemed not to raise any confinement neuroses.

The pigs went where they wanted. Without penning them or building stone walls on deep foundations, or tying them down with food dependency, she found them unencloseable. Which was all right as it turned out. They liked the forest better than her open gardens, and didn't do enough damage to the crops to fuss about. In fact they helped keep the surplus from mounting.

They were still close enough in generations to wild that they knew how to take care of themselves against predators. A cat got one sometimes. They got at least one cat that she knew about. And they were smart enough to avoid Papa's space, and his crazy robotic whose job was to chase them away with its cluster of really mean electric prods.

The pigs liked her, all of them, and any who caught sight of her out walking would join the stroll, following behind, sometimes at her side. Why, she didn't really know. Perhaps because she talked to them, or scratched a needy snout or ear or back. Perhaps they simply recognized that she liked them too.

"Pig," she said one day to a companion in the orchard, "you are the closest thing I've had to real company in a thousand and eighty-six years. Have an apple." She picked one and tossed it toward the animal, who snapped it out of the air and put it away with a gulp.

"Great place we've got here, isn't it. You guys at least are lucky that there aren't any more people. No such thing as bacon and eggs and sausages and ham steaks any more. I think you make better friends than breakfast any day. I'm sure you agree."

The pig grunted, not in reply but thinking it was time for another apple. She obliged.

"Pig, you probably don't care one way or another, but you are in the company of the world's greatest expert on life. Did you know that? Your friend here is more than just another blonde. Beneath these curls -- and in other places -- there lies an absolute trove of knowledge, experience, and if I may say so a natural gift for the business of life.

"A little respect, pig. You're talking to the lady who reassembled your genetic jigsaw puzzle in eight short generations. Clever, huh? See that moo-cow over there -- yeah, I know she's dumb, but boy has she got classy bloodlines. I figured her out too, know what I mean?"

"There's a lot more in the freezer where you come from, pig, and I'll get pretty well all of them right, you watch. I told you, I'm the best there is. How'd you like a big smart dog for a friend? Ambivalent? Keep an open mind. Dogs can be very good buddies. Particularly in a world with big hungry cats who don't share our aversion to ham steaks.

"It's a real sonofabitch, pig. This business of being the genetics expert I mean. You see, I've got all the makings in Cryo to put together almost any species you'd care to name. And that includes -- are you ready? -- Homo sap. True. Even ova. You should read the letter I found in the code files. It'd break your heart. From a bunch of women. I knew a couple of them.

"It's a mindbender, pig, a real mindbender. Because it's so easy now for me to bring back any kind of creature there used to be except the only one that really matters. Not counting pigs of course. I can't do

people, pig. That's the one species I can't bring back. There aren't any wild mares or heifers or sows or bitches for people. You understand? They're all there in the locker and I can't ever get them out. You want another apple? You got it.

"Well, this has been a nice chat, and I'm glad everything's going well with you. I should get back now. We're getting up an expedition to go catch us a kitty-cat. Oops, did I say the wrong thing?"

"Papa, what do you do with yourself these days?"

"Nothing new. There's always something that needs fixing. A lot of the time that means it needs redesigning too. Why? Are you working up to another Goddam project you want me to drop everything for?"

"No. It just struck me that you're awfully -- relaxed lately. Under different circumstances I'd suspect you of having a woman somewhere."

He said nothing, this being the sort of comment she made from time to time that he had learned not to ask to have explained.

"Doesn't it bother you any more that your sequence is stuck? Don't you think about what all this -- stuff -- all this -- activity is really for? About why you and I are really here?"

He didn't. The sequence having been set back to survival with no time clock on it answered his needs. He was properly employed. There was no warp or urgency in his existence. His was not a metaphysical nature.

"Well I'm getting so I can't think of anything else. I'm flashing on people all the time. I'm remembering that little tiny bit of time I had with them frame by frame like an old movie. It was so good, Papa. People were so much better than anything else. Being with them, a part of them - I can't turn it off anymore."

He listened on, aware that she was in trouble, hoping he would catch a clue somewhere that would let him try to fix it.

"I've got to do something, Papa. I can't stand puttering around pretending any longer. But there's nothing I can do. They're all gone. I can't bring them back."

"Have you tried?"

Papa's rebuild of the Cryology Section as a separate building was, apart from the barn which was copied, far and away his finest architectural work. Somehow, without possessing the least hint of an aesthetic sense, he'd created a structure which would have been treasured by any of the northern nations that were, and rebuilt war after war.

Sylvia was open-mouthed at its line, its presence from any angle, any distance. She asked him what the style was, after trying to find his source in the library. He couldn't tell her. Only that he was full of the barn at the time, and had mixed this together with what was needed to house all the equipment plus her input on what the ultimate users would probably require.

She thought of all the form/function clichés and they didn't cover this phenomenon. Papa had been one-in-a-billion lucky, or he had been possessed by one of the medieval masters was her feeling.

Inside, all stone and timber and clerestory light that belonged in a place of worship, of a God with great love for His or Her children, even the silence was perfect.

After he'd completed the adjacent pumphouse and finished building in the equipment and got everything tuned up and working perfectly, she asked for a favour. Would he bring in a terminal from the library's music section? For her to use. No other justification. For once he'd complied without a murmur. And gone out of his way with the speakers. Perhaps he caught her feeling for this place.

She played a lot of Bach and Vivaldi at first, then big things from later on. Symphonies and concerti and grand opera.

Cryo was quickly her place of inner retreat. The equipment, lockers, tools of the biologist's trade, were gathered in the apses which, like chapels, didn't intrude yet served their purpose. The building's aisles were workspace, uncluttered, at hand. Its nave -- this was all Sylvia's personal nomenclature -- was pure space, unbroken from end to end, floor to ridge.

She lay on a bench at the centre of this space now, listening to junk music in unending succession. George Formby strumming and singing *Sitting On The Ice In The Ice Rink*. The music of the people.

Had she tried, Papa'd asked. And she'd had to admit no. Looked, wished, raged, despaired. Not tried. Feared that hope was a thing with feathers that perches in the soul and rends forever. Sitting on the ice with his pants all wet. Try what? Mary Shelley mumbo-jumbo?

Man is gone. Only bits of his gene pool and culture remain, lovingly preserved, revered like a martyr's shinbone. Kept among my souvenirs till the end of time when it don't hurt anymore.

Try what? Everybody knows birds and bees in the chewing gum trees. She could outbreed and backcross up a green Samoyed if she put her mind to it, but you need a mommy to plant daddy's seed in so it'll grow and become a baby. Everybody loves a baby, that's why.

No you don't need a mommy. Not if you've got sperm and ovum both. At least you don't need a mommy with her own eggs. You need a uterus. An uterus? An unfurnished womb to let. Wanted: one human uterus for nine months' use. Must have all services. Bonus paid for immediate occupancy.

Uterus, uterus, who's got the uterus? Hit the books again. Where did they get to with all that in vitro nonsense? Why do you want to do it in a bottle, dearie? But mother he said it was just a friendly piece of glass. Pregnancy is taking seriously what was poked at you in fun. The firemen went up the ladder and came down pregnant (carrying a baby hah hah).

Uterus, uterus, wherefore art thou? Marsupials make the poor little sods hand-over-hand it up to theirs. Hens discharge their responsibilities daily. Cluck! People though, poor people. Way out on

an evolutionary limb. Without a paddle. Get Madeline home, make whoopee.

In vitro veritas. Mommy's egg and daddy's seed. But you need the oven to put the bun in, dammit. Test tube babies come out all glassy-eyed. The fertilized egg, does it have a soul? Should your abortionist have the number of a priest handy? We are gathered together to join this egg and this sperm in chromosomal pairing and may all their postzygotal troubles be little ones.

What do you do for an orphan zygote? Play zither music while we ponder. You don't make it without that good old-fashioned womb, Sylvia. Go to your womb until you learn how. You ain't got one. Smitty said sorry but you ain't got one. You gotta use your head. Instead. Poems are made by fools like whom? But only God can make a womb.

Everybody's got one. Common as dirt. The nice doctor used to take them out whenever he was in the neighbourhood, to prevent hysteria. What's written on a group wombstone? Requiscat in packs. Everybody's got one. Can I borrow your baby machine, Jean?

Who are you, Jean? With your light brown hair. I dream of Brownie with the light blue genes. Blue. Is the colour of my incompatible baby. What's incompatible? They shipped baby theses in momma thats. Didn't they? Foetal theses? Egg theses? Same-species theses? Or what? It's in the book.

"Papa, can you put in a reader here too? Please?"

And the music goes round and round, round and round, and it comes out here.

There wasn't an answer in the books. There were lots of interesting questions. Species formation from genetic divergences -- what were the molecular bylaws of speciation, really? What were the working rules of the genetic enforcement officers? Taxonomically could you count variations in protein, in nucleic acids, and come up with a number that separated genera and species, species and subspecies, subspecies and races, races and mere eccentricity? Was there a

number above which you didn't have a weird one of them but instead a weird one of us? Was the selective G-spot a place rather than a number?

Was cross-breeding a firm test of genetic distance? Vigour or viability of hybrids a shibboleth? Was speciation just a way for DNA to built new niches for itself? Is the virus the real master race, the ultimate real estate developer?

Homo sapiens sapiens versus H. s. neanderthalensis. Did the genes jump ship from muscles to brains? Invent brains? Did two DNA tribes get into an armaments race? Did they resume trade relations after the war was won and lost?

The monkey's uncle view. Or rather monkey's nephew. Uncle chimp was the nearest relative, everyone agreed. Did the DNA tribes that invented man and chimp still speak any of the same language? Immunological differences between albumins zip. Haemoglobin A interchangeable -- did they ever try it? One mutation covers the nucleotide changes. Both a good home for those tricky little retro viruses. How wide was the gap? If you really, really wanted to jump across?

"Papa, I bet you've never heard of Frank Buck, have you? Well never mind, I'll tell you all about bring-em-back-alive Frank, and we'll be creative from there. I want to go around to the other side of the world and pick up half a dozen chimpanzees."

With no hope of reproducing their habitat, Sylvia did her best with what was available. The creatures were so damned smart and so damned capable, and they wanted out so thoroughly. She marked off their turf from part of her orchard and a contiguous section of the veggie garden. Then split this to give the male and two females their own place, and the other four females theirs. None of them liked this arrangement in the least. It took very high wire mesh fencing and

clever, subtle tricks with unpleasant voltages to create, if not acceptance, at least recognition that this was the way things were.

She tried to befriend them, first as a group, using approaches she had found successful with other animals. No soap. Her washing machine had had to be called in a couple of times to break up dangerous situations. Separately the monks reacted to her with rage or shivering passivity, nothing between. In time she gave up trying, put them all together, and bent her efforts to bringing along a second generation with whom she might develop a better rapport.

They didn't breed. Captivity? She didn't know, but cussed out the male as a wimp. Artificial insemination took a lot of doing but she managed. A bit grimly at times, but she managed. And managed again after the first cohort was securely established elsewhere, bottle and hand-fed, gentled, talked-to, mother-loved, fully raised to cages and being pampered. The second cohort similarly well in hand, she had a crisis of conscience about the original captives. At length, over Papa's well-reasoned objections, she returned them to their home around the world. And wished them well as she released them. They got out of reach and called her bad names.

CHAPTER 35

She couldn't stop herself. Papa had redesigned a robotic to be her lab assistant. It had to have a name, didn't it? She couldn't call it 'hey you' twenty times an hour. And could there be any other name than Igor? Of course not.

Igor had some capabilities beyond her own. High magnification optics, on flexors and with through-the-lens illumination. A whole range of surgical and microsurgical fingers, replaceable, antiseptic at a pass through the ionizing radiation in Igor's back pocket. Hands as steady as rock. Igor was also constructed so that Sylvia could take it over as the need arose, see through its eyes, use its surgeon's hands.

In the normal routine she would give Igor tight instructions and busy herself with other work quite comfortably, knowing it would perform well the task she had assigned. Papa had endowed it with enough memory to retain experience and the wherewithal, if not to learn, certainly to improve with practice. It had got this practice with pets and farm animals. Now it was helping her in her try for people.

She had the Cryo cathedral ringing with music all the time now, music she didn't listen to but heard, almost bathed in as a context that kept the reality of what she was striving for at hand. She had a great deal to think out, much to try out, all complex, most beyond any assistance from the library.

Implantation used up four generations of chimps, and more than a quarter of her slim stock of human ova. It was achieved by playing outrageous and fraudulent tricks on the genetic makeup of the chimps themselves. She bred a line whose body chemistry was slightly less xenophobic, whose females didn't instantly flush the foreign eggs which Sylvia and Igor so painstakingly revived, fertilized and emplaced. The acceptance was grudging, and needed brutal chemical assistance. There were deaths from physiological outrage.

She mourned these. They had names, personalities. She had been their mother before becoming their reluctant, driven tormentor. The deaths were not pointless. She learned like Wellington's surgeons. Every patient who died helped others to live.

Six weeks was a barrier. The embryo and the mother, always in deadly antagonism, couldn't both make it beyond the first half of the first trimester. Sylvia analyzed the materials from these failures -- these were terms she forced herself to adopt -- and used them with growing sophistication to disarm the battle between host mother and parasite embryo.

Six weeks were extended to ten. What specifically caused the termination? How could it be alleviated, got around, postponed? First trimester plus. This was a dead child. A human being. She soared.

And plummeted. Her strain of altered chimps all died suddenly, unable to reject a certain virus any more than an alien pregnancy. She buried them, then cleaned her cathedral raw, carefully stored the biological materials in the freezer, and went back around the world.

"Igor, she'll be dead by tomorrow. We've got to pull the baby now, while it's still alive. You'll do the C-section, I'll deliver and get it into the supports as soon as you've cleared the placenta. You stay with the chimp then, close her as quickly as possible, then get to me and the babe. It'll need work almost immediately. Okay?"

Igor confirmed understanding, and began organizing its fingers into appropriate sequencing. Sylvia put the incubator through all its routines, sterilized everything, and stepped over to the brightly-lit operatory, where Igor was checking vital signs and minutely adjusting kinds and levels of anaesthesia.

She watched the surgery from her own eyes, unable to match Igor's skill, wishing desperately that this could be hers to do, to have the responsibility for. She doubted, if the terribly premature birth about to take place failed, that they could bring another pregnancy as far. This had too much luck, from the extraordinary size and health of the host mother to her exceptional tolerance of the various abuses visited on her. It was unlikely that another twenty-five week carriage would ever happen. She was at the limit. This would be the very best chance, forever.

She could only watch, impatient with Igor's precise, unhurried competence, glancing now and then at the monitors for reassurance about the chimp, holding herself out of the way.

"Papa, are you there? Are you staying with me right now?"

Papa almost sighed. "Yes, I'm monitoring. Would you accept comment?" She would. "I've had some Goddam lulus of problems in my time, and I beat 'em all with logic. Some even with logic from your world, that you showed me. I know you're not completely illogical, and I'm experiencing intrusive correlations (I sympathize) with you. But that is the Goddamnest wacko (approx.) device I've ever laid eyes on (approx.)."

"What is?"

"That biological you're trying to develop."

"The baby?"

"The baby. I've tried to follow your engineering and it makes my brain itch (approx.). I know you want to match an existing design, but I'm Goddammed if I know why. That is the most illogical, unlikely, altogether weird piece of work I've ever encountered. Why don't you give me your requirements and let me work up an equivalent that makes some kind of sense designwise. I'm not knocking your efforts, Sylvia, and I realize how much you want to do this by yourself, but there is an easier way. There really is."

Sylvia felt the friendship and concern, and focussed on these to keep from laughing. Or crying.

"Papa, thank you, but there isn't an easier way. I don't have any choice, because I'm not the designer. Just a clumsy mechanic without even a rough plan to oh God, it's a girl! Papa, it's a girl!"

The Girl, and she never received another name, took all of Sylvia's time and effort during her first months of life. Igor was needed as well, being called on for two impossible bits of corrective surgery during this

critical period. And Papa, even Papa was involved. Sylvia instructed him immediately to get serious about the cloth industry he had been promising for so long.

"There's lots of sheep. There's a field of flax. You've already got a cotton-picker. I know you're making synthetic fibre for filters and rope. I've read you twenty books on carding and spinning and weaving and fulling, and you know where the machinery plans are. I need cloth, Papa. And I'm going to keep on needing it. For clothes. For diapers. For sheets and blankets and nighties and dolls and tablecloths and umbrellas and back packs and running shoes and -- oh Papa, we've got to get ready!"

As the weeks passed Sylvia made regular requests of Papa, which he attended to briskly and without complaint. The truth was he had for some time been rather bored. Maintenance and repair were all right, but at bottom he loved a good challenge, and Sylvia was now supplying challenges on a daily basis. Mostly she asked for things or materials, which he could handle in his by now extensive shop-cum-factory. Occasionally she handed him a zinger.

"Papa, will you milk the cow for me, I'll tell you which one."

Four impressed gardener robotics finally managed to coerce the domesticated but independent and hitherto un milked Guernsey into her shed, and with further effort even stalled her. But milk her, no sir. Two of them held off her wild-eyed calf. A third tried to stuff hay into one end while the fourth approached the other with a pail. She trashed this last with one kick, then butted the hay-stuffer into a corner on its ear. Help was called for. Sylvia left The Girl to Igor's attention and went to straighten things out. A vacuum milking machine was devised, and the Guernsey provided with a robotic that had softer edges and warmer hands.

Sylvia held off naming The Girl for her own good reasons. To begin with she couldn't decide. This was such a momentous, epochal human being. The first. The hope. The salvation. Could you call the most important person ever born Alice or Jill or Cathy? So she deferred. After all she wasn't officially born yet. Artificial or not the incubator was a womb. Her birthday would be the traditional coming-out day.

Then as this day grew nearer she began to realize that The Girl had more problems than those of prematurity. The way had been too beset. There had been too many traumas, from molecular on up. The Girl was not right, never would be. She was alive, and with care might stay alive, but the signs of damage were impossible to miss. Getting here had been too hard. So The Girl come into the world without a birthday and without a name, and Sylvia loved her.

The damage unfolded as The Girl developed. For all Sylvia's care, and all Igor's corrections, and all Papa's fleecy blankets and educational toys and material support, there was only physical growth. The mind struggled to below the level of a two-year-old. She smiled, recognized Sylvia and Igor, achieved toilet training and self-feeding after a fashion, could walk and even play a little with some of the animal young -- rabbits and puppies. But she never mastered any kind of speech. She was hearing-impaired. She had to be fitted up with strong glasses. She was -- incurious.

Sylvia washed The Girl, dressed her, talked and played with her. She observed carefully, found the songs and music which pleased, and played them frequently. She abstracted the museum's sewing machine and made bright, soft, safe dresses and coveralls and bibs for The Girl. She brushed and braided her hair. She carried, then walked with her everywhere on the farm, picked her flowers, watched the different animals with her, had picnics on the beach and in the forest and at the quarry. She visited Papa's buildings with her, showed her movies, took her for little rides in the washing machine.

The Girl grew physically in almost a normal fashion. Sylvia had studied nutrition at the time of the incubator, and ensured that she at least had the best possible chance in this respect. She kept her active, well exercised, properly vitamined.

At six The Girl almost looked like the six-year-olds in the films. At twelve she seemed closer to ten, but rosy-cheeked and fit. At fifteen Sylvic saw what she was looking for, and let out her breath a little. The Girl was beginning to grow breasts. A little peach fuzz was coming into being at her pubes. Untypically, Papa found tampons to be a very sensible request.

"Pig, this has been an interesting day. You know the nice girl that usually comes walking with me? She's having a nap right now but she'll be out again tomorrow. Anyhow, guess what happened to her this morning. She got knocked up, isn't that wonderful! And she's going to have twins.

"I know what you're thinking. Ho hum, yawn, no big deal. It is a big deal, pig. In nine months we're going to have two real live people in the world. Well, little guys, but the real thing. Then you'd better watch out. I'll try to steer them toward vegetarian, but you just watch your backside.

"The Girl? She doesn't know anything's happened to her. I'm not sure she ever will. Maybe she should have a name finally. Would Mary be tasteless do you think? Yeah, probably. Why twins? Well I thought about it, and she's a very healthy girl, but you can't be sure, can you. Maybe she only gets one try. They're fraternal, right? I thought that would help the odds on getting a daughter. Oops, gotta go. Papa wants to know what a Goddam double baby buggy looks like. Catch you later."

This time the pregnancy was by the numbers, straight out of Sylvia's obstetrics book, day by day, month by month. Mother thrived, and grew wonderfully. When the babes began to move around Sylvia was at The Girl's tummy ten times a day. Even Igor got to feel the little lives. The Girl herself didn't really seem to notice any change.

She walked with Sylvia still, even big as a barn. She was pampered more than before, but she didn't remember, and couldn't compare. Sylvia listened to the tiny heartbeats, fed supplements, played all the well-tested music, sewed, pushed Papa to come up with more and more not very vital gimcracks and whatzits for the nursery. As well as a proper nursery abutting the Cryo building. He didn't mind. Far from it, he was quite caught up in her excitement and anticipation. She had finally hinted that her babies, if everything worked out, might have

something to do with getting his sequence started again. Maybe. Sometime. Cross your fingers.

Sylvia had no one to share it with, but she was both entertained and moved by The Girl, only a week or two from term, on their short strolls. Seventeen, looking four years younger, in a maternity smock of very high fashion thirteen centuries in the past. Holding her hand, blinking at a butterfly, unaware.

Drawing on experience and the books, she decided the delivery should be as natural as possible. The Girl wouldn't be able to help, but to balance this she didn't have the imagination to be apprehensive. Several levels of relief were set at hand on the chance that there would be pain that couldn't be soothed or distracted away.

The Girl couldn't tell her when it was time, but Sylvia had been with her constantly for the previous week, and knew of the contractions before The Girl herself really noticed. Everything was kept calm and usual. Sylvia just undressed her and put her to bed as always. Igor was in the background, quietly bumping around as it generally did. The music and lights were low. The Girl almost drowsed. Sylvia chatted quietly to her. It was just another bedtime.

The contractions grew in frequency and strength. Sylvia could see them tugging at The Girl, getting her attention, then hurting her. She took her hands and smiled, and hummed along with the song in the background. The artificial hands squeezed the human ones when a contraction hit. As the hurting grew, the human hands squeezed back. Sylvia talked to Igor without speaking.

"Don't move quickly, but check her dilation. Use your soft hands. Palpate for position."

Igor wasn't even noticed by The Girl, who was now nearly rocking with Sylvia, and clutching very tightly. There was an extremely strong squeeze, The Girl almost pulling herself off her pillow. Sylvia met the grip, still smiling. The Girl gasped and pulled again. Sylvia held hard and flashed into Igor for a tenth of a second. The first was almost clear.

"You're doing it perfectly," she murmured, "without a lesson even. Just don't let it hurt you too much. That's it, darling, have a little rest." The Girl went limp. She was perspiring, but otherwise showing no distress. She had neither laughed nor cried much during her whole life.

Sylvia flashed again. Igor was just picking up the first, competently. It was a boy. The Girl squeezed again, and Sylvia returned her attention.

It was all over in less than an hour. One boy, one girl. Perfect. The mother was asleep by the time the two babies were dry and examined. She hadn't noticed the tiny squalls. Sylvia sat by the bed for a couple of hours with a sleeping infant in each arm and rapture in her soul.

CHAPTER 36

She had already done all the reading she cared to on the business of being a mother. Apart from the interesting fact that so many of the authorities were men, there just wasn't enough of a consensus for her to be comfortable buying anything any of them had to say. Most, she observed, fell into one of two equally suspect categories.

There were the 'scientists' who laboured mightily to describe, predict and influence mankind through numbers -- formulae and statistics and other sorts of bean-counting. And there were the earnest darlings who looked oh-so-deeply within their own psyches and there discovered the key to understanding humanity. And proceeded from this revelation to advise the universe about everything.

She found mothering to be less than a mystery, at this stage anyway. Her two needed feeding and changing and bathing and burping and soothing. These needs the babies themselves made clear one way or another. And they needed love, which was the time and attention, the silly chat and play and cuddling that flowed in abundance without expert advice.

She named them Robin and Jay. Not purposely androgynous or cutesy -- Jay was the girl and Robin the boy -- but instinctively as far away as she could get from the Patience/Victor Mercy/Marshall stereotyping of many given names.

The first couple of days after their arrival had been a very thoughtful time for Sylvia. She was constantly with the newborn, busily securing post-partum life. And as she dealt with these helpless and utterly dependent little tyrants her mind took her along paths familiar to new parents through the ages.

What they might become, these pink grubs, flew around in her imagination. As individuals, as parents, as ancestors, as myths. How they would think of themselves, what this untouched world would mean to them. Where mankind-that-had-been would fit into their lives. What it would be like to start from nothing.

Then her looking ahead darted off in another direction. What would she be to them? When these little beings had become separate and

themselves, adults who had charge of their own lives, how would they understand the unchanging, inescapably nonhuman mother who had raised them? How would she, as a model, shape them? Beyond rearing them to maturity like a new breed of dog or cat, what were her responsibilities? What must she do? What ought she to do? What should she try to influence them toward? Away from?

In those two days Sylvia arrived at the place she was to occupy for a long time. She decided it made poor sense to try to set herself rules for the role she was embarking on. She didn't like the idea of playing a role at all, for starts. She liked and was very used to being herself. So herself she would remain and let the chips fall where they would. This was rule number one for the rule-less time ahead. Don't playact. Don't do mommy imitations. Do give the kids one and only one person to deal with and relate to and react against.

What was rule number two? It flitted around at the edge of her mental focus. Don't let them kill themselves or each other -- come on, Sylvia, work it out. Do for them what needs doing by you, and then keep out of their way. That's not a rule, it's an attitude. You don't own these little people, but you do have the responsibility for them. Not a good deal. You won't get anything like your investment back, ever. But then it *is* a good deal. Because they'll make the same investment in their time. On the same terms. And that's how it works.

"Okay, you guys, I've got it straight. I think. I'm going to be me. You're going to be you. The best way we all can. Does that sound about right to you?" They both dozed on.

The pink is for girls and blue is for boys convention occurred to Sylvia only after she had officially endowed them with opposite-coloured names. She decided to discontinue the convention, and looked forward to the non-revival of several other gender-related customs and attitudes from the past.

The mothers -- the biological maternal precursors -- of sleeping Jay and waking Robin came to her thoughts. She tried to form clear mental pictures of the women whose signatures she'd read in the files. One or two came forth as individuals, not clearly but almost. She let them recede and reviewed their letter. We have done this to be fair, to

ourselves and to you. If this is a useful gift, we are glad. If not, we are still glad to have offered the other half of Man.

A little purple, she thought, but hell they were scientists not writers. Now the gentlemen donors, they were a pretty mixed bag so to speak. All sorts. Intellectuals, achievers, anons. Stirred up in the pot. You gets what you gets. No exchanges.

"We need more diapers, Igor." Igor disappeared to fetch.

"Papa, you there? Will you fit Igor up with a nice comfy padded shoulder please. For burping. So he feels sort of like me. Okay? Thanks."

"You two beauties have won yourselves a funny kind of mother I'm afraid. I'll tell you how it all worked when you're older. Maybe. If you really want to know. I think you'll have to be pretty grown up before you'll understand about The Girl though. I'm not sure you should meet her. I'll have to think about that one.

"Okay, Robin, hush now. Shh. Relax. Don't wake your sister, Igor doesn't cuddle worth a damn. Come to think of it she's not really your sister, is she? Hmmm. That could make life interesting down the line. Well we won't worry about it right now, will we. Shh. Shhh. Be brave, Sylvia's here. It's okay, love, it's a very nice world, you'll see."

Jay and Robin walked on either side of little Mac, each holding one of his hands more firmly than necessary to impress on him the need to behave. This was a sad and serious event, even if he didn't understand it. Sylvia was sad, he could see that couldn't he? Well he had to be extra good right now, so that he wouldn't make her sadder. He was a big enough boy to do that, sure he was. And if he let one peep out of him they would feed him to the pigs. See, even Stripe is behaving, and he's just a dog. He's probably sad too.

It was threatening to rain, but too warm and humid for anything except shorts. Sylvia had tried to get the top up on the old buggy, but it refused to unlock itself and so she and Igor each carried one of the

baby girls. In diapers, which seemed proper dress in this shorted gathering.

Papa's casket was a nice piece of work, made of boards from one of Sylvia's original pine trees, harvested, sawn and set to seasoning decades earlier. He'd even cast bronze handles, possibly not understanding their use. The casket was moved by matter-of-fact robotics that shoved carrier wheels underneath and rolled it down to the hedgerow by the rose garden. They had dug the grave earlier. The casket remained on its bicycle-sized wheels as the funeral party arrived.

Sylvia wasn't sure what she was going to say. Death, this one in particular, had to be marked for the children, and explained to them. This was their first. Jay and Robin had some idea, maybe. Stripe's predecessor, although he was old, and Sylvia's friend but not theirs, had upset them by not waking up one morning. They had watched her bury Spot, and grasped that this was forever. Mac might remember what happened today.

She looked around at the silent party, counting in spite of herself. Two almost five-year-olds, one two-and-a-half, two seven month babies, herself, Igor, two robotics, a sleeping dog, and coming down the path a nosy pig. Oh and Papa, present through his fine casket. This was the whole world, assembled to say goodbye to The Girl. Her poor Girl, so unknown, so unknowing.

"The Girl inside this box liked flowers and bunnies and butterflies. She looked like a big girl, but inside she was very, very little, just a baby. We're going to put her in the ground now and let her go away forever. I hope that she liked it while she was here with us. She was the nicest thing that ever happened to me, because all of you grew inside her.

"You children don't have to be sad, because you didn't really know her. And I'm sad for me, not for her. She was hurting, and now she doesn't hurt any more. She was too little inside ever to give love or to need it. But I loved her for you all, and I love you for her, and that probably makes everything right."

She instructed the robotics silently. They looped ropes around the ends of the casket, moved it to the open grave, and lowered it to the bottom. She picked up a handful of dirt and sprinkled it into the grave, then looked down for a second.

"Goodbye, Girl. Thank you." She waved baby Emily's hand bye-bye at the casket, then turned and walked off along the path. Jay and Robin, still firmly clutching Mac between them, followed Sylvia's example by sprinkling dirt into the hole and murmuring Goodbye, Goodbye.

As they turned toward the path little Mac wrenched his hands free from theirs, squatted, and pushed a double handful of loose earth into the grave. "Bye bye" he said, and scampered off after Sylvia with Stripe in pursuit.

Igor, whatever his thoughts might have been, ambulated to the graveside, nudged a little dirt over the edge, waved baby Agatha's hand goodbye, and followed the rest. The robotics, taking their cue from Papa now, set to filling the grave. The pig thought there might be something good in the pile of fresh dirt. One of the robotics swatted it on the rump with its digger. The pig backed away, then wandered off through the roses. The rain held off, and later in the afternoon the sun returned.

CHAPTER 37

Sylvia's parting request to please stay out of trouble had been ostensibly directed at all three, but really meant Mac. And she'd instructed Igor to pay particular attention to the comings and goings of this free spirit. Surely between them Igor, Papa and the dog could babysit three basically good kids for one little day.

She packed Jay and Rob and a healthy hamper of food and drink into the washing machine and left for the long-promised dig quickly, to prevent second thoughts. "See you tonight. Bye!" The little craft ascended, circled once for final waving, and headed east toward the desert. Emily broke ranks first, before the excursion was out of sight.

"Where you going Em?" Mac called after her.

"To the liberry to look at movies." Igor, having to choose between stationary and departing, chugged off after the receding figure.

"Can she work it by herself, Ag?"

"Naw, just make believe. She'll probly read. She's a suck."

"You wanna go with her?" This would leave him with no hint of responsibility. "I bet you could get Igor to let you into the museum."

"What're you gonna do?"

"I dunno, just hang around I guess."

"I'm gonna hang around too." She thought Mac was the most interesting person in the whole world, and knew that doing nothing with him would be far more fun then doing anything with her goody sister.

Mac accepted the inevitable and looked around to see what was happening. He spotted a robotic with a load of timber coming down the Shop Road, and headed to intercept it. Agatha tripped along behind. When they had caught up with the unhurried robotic Mac hopped up onto the load and helped his sister to climb up beside him. The robotic didn't notice.

"Where we going?"

Mac looked at the precut and shaped timbers they were sitting on and reviewed the building projects in progress. "To the new house I think." The robotic angled toward the Quarry Road, confirming his guess.

Emily was frustrated. She knew Igor could work the movie machine. She'd seen him, when Sylvia had to find out how to fix Rob's broken arm. But she didn't understand how narrow his competence was. He was familiar through long experience with the medical section, but that was all. And he couldn't read, so the index was no help.

She placed the metal hand on the buttons again. "C'mon, Igor, you can do it." She knew Igor could only understand Sylvia when she thought at him, but felt if she showed him what she wanted firmly enough he would comply. This time indeed Igor did play with the buttons, and rolled the index quickly through to Medical/Surgical. Then the hand was removed.

Emily had watched, however, and now poked at the same button. The display continued to move. She looked closely, but nothing familiar showed up. At length she removed her finger, reviewed the meaningless abbreviations and letters on the other buttons, and gave up. The library she could handle. She wandered off to see if Anna Sewell had written any other books.

The index had stopped at Pornography. Igor, vaguely understanding that this was what Emily had selected for him, punched in the first entry on the list and hunkered down to learn.

Many, many years before Papa had levelled the top of a bedrock outcropping to be the foundation for something or other that had been built elsewhere. This half-acre table had been used as a picnic ground and quiet place occasionally, but had otherwise remained untouched.

The quarry was worked farther and farther away, and finally jumped to another good showing half a mile off that wouldn't have to be pumped. This left a wonderful green lake behind, which extended right to the base of the table rock. Sylvia had picked this place to build the additional housing that would be needed sometime soon. Here it was that the robotic delivered its load of timbers and children.

Mac skinned down and dived into the water, swam quickly to the other side and pulled himself out. "It's awfully cold," he called back, "you'd better stay out." This of course compelled her to dog-paddle across too. The two of them spread-eagled on the warm rock and were soon sun-dried and comfortable again. Sounds of industry above them, from the hidden top of the rock, got their attention.

"Let's go see."

"You go. I'll get the clothes and meet you." Mac set to scaling the rock while Agatha worked her way across the quarry to their jumping-in spot. Rather than try the steep rockface she walked out to the robotics' carrying path and followed it around to the top.

Papa had the stonework completed to where it could receive the roof, which was presently being worked on by the robotics. Mac had recognized struts and straining beams without knowing their names.

The two walked around the structure trying to find a good place to watch from. There wasn't one, and so they climbed the scaffolding inside. Here they were right in among the robotics as these laboured at the roof's complex skeleton.

There was apparently a problem. They couldn't assemble queen posts, principal rafters, struts and tie beam and lift everything into place as a unit. It was too large, too heavy all together. But when they tried to assemble things piece by piece this couldn't be done either. None of them could get into position to pull the pieces into place, fit tenon into mortise. They were too heavy, too awkward, didn't have enough appendages both to hang on and do any useful work. This situation was very clear to Mac, and to Agatha as soon as he explained it.

"What're they going to do?"

"They're not very smart. See how they keep doing the same thing? Look at that one, hanging on like bark! They need a crane up here."

Papa, who was watching the efforts of his workers, or rather doing the exercise through them, at this moment had coincidentally come to the same conclusion, and was Goddamming ferociously to himself at having okayed such a steep pitch. He had a crane that would do the

job, but it was in use down at the power plant. This was going to cost a bloody month.

Then he became aware of the children. Oh damn, where's the other one? Emily was soon located in the library. When he brought his attention back to the roof he caught his mental breath. What was it up to?

It -- Mac -- was shinnying up a principal rafter which was attached to nothing and held shakily in position by two robotics with pike poles.

"Come down, Mac, you'll fall!" Agatha didn't know how to stop him, though she should have realized this was exactly the wrong way to try.

Mac reached the end of the rafter and waved. "Hey, you, lift up the middle things now. I can get them in." Wonderfully, this happened. Papa grasped the boy's intent and moved each strut and post and strainer up in its turn as Mac, swinging around like a monkey, guided them together. With the first unit in place and secured by temporary braces, Mac swung down a positioning rope to the scaffold. Papa had one of the robotics come over and place a mallet in his lap.

"It's telling you how good you were" said Agatha.

"I think it's offering me a job" replied Mac.

Sylvia returned after dark with two tired and very pleased twelve-year-olds. They had located Palm Springs, poked through the dunes, climbed ruins, dug into a nearly-intact room, found souvenirs, and all in all had a glorious time. She got them to bed before she checked on the others.

Agatha was asleep and filthy. Emily was asleep and clean. Mac was missing.

"Papa, where is he? Papa, speak to me!"

"Over here in the library. I'm showing him some books."

"You're what?" She ran all the way to the main complex, and arrived at the library in great confusion. Papa? Mac? Books? Something was surreal about this combination. She found Mac at a reader, with a robotic by his elbow, immersed in something called -- she checked --

Elementary Building Construction And Drawing. He didn't notice her arrival.

He was scratched, dirty, and voluntarily at a reader. She tiptoed away from this phenomenon. There was an explanation. She'd get it from one of them. As she was leaving movement from the movie section caught the corner of her eye. She walked over.

"Igor, what on earth are you watching?" He looked around blearily, switched off the machine, and followed her out, hoping in his dim way that he would never be called on to perform these procedures.

Stripe had abandoned his duty altogether, and spent the day playing with the pigs. He wasn't welcomed when he finally arrived home.

CHAPTER 38

"Who knows where babies come from?" Every hand went up. Sylvia pointed to Agatha.

"From inside the mothers. That's where they grow until they're born."

"Do you know how they get started, Ag?"

"The mothers have little eggs and the fathers make 'em grow."

"Right. Now somebody else tell us how the fathers make the mothers' eggs grow. Emily?"

Emily made a face. "They fertilize 'em."

Sylvia wouldn't let her slide around it. "How do they do that, Em?"

"Their sperm mixes with the egg and makes it fertile." Emily made it clear that she didn't find the arrangement really fascinating. Sylvia thought she should do one final check before she got into the real discussion.

"Mac, how does the father get his sperm together with the mother's egg?"

Mac had no doubts and no reticence on the matter. "He fucks her." Sylvia didn't flinch. If he'd read it, that was encouraging. If he'd heard it from her, at least he was using it properly.

"Okay, everybody has a pretty clear idea about sexual reproduction, right? Any questions, ask them now." Basically they were farm kids. She'd have been shocked if any of them, including the eight-year-olds, found any mystery in the business.

"Jay, I gave you a couple of books to read so that you could tell the others how nature mixes two different parents into one baby. Are you ready to do that now?"

"The genes and chromosomes part you mean?"

"That's right. Use the blackboard if you like."

Sylvia listened with only half her attention as the dark-haired girl gave her expected competent presentation. She'd asked Jay how she would feel about sharing her onset of puberty with the others at this class. And Jay, very pleased with herself, had said sure.

This get-together in one inclusive class was because Jay's development said it was time. Sylvia had made sure that all the children were well aware of the use and workings of sex in her animals. And she had tried to fix the understanding that people went about it in pretty well the same way. Still, she had never had a full-out birds-and-bees talk with them all until now.

When the book lesson was completed, Jay remained standing as Sylvia took over and explained sexual maturation in the human being. The girl talked about what was happening to her. Sylvia added information that was not obvious. A question or two told her that everyone had absorbed things well enough. Sylvia thanked Jay, asked her to sit down, and took a deep breath.

"Okay, you know how people reproduce themselves, and you know that some genes from the mother and some from the father make up what the baby gets as a plan to grow from. This arrangement is how nature keeps trying out new combinations of characteristics. She's always looking for a little better recipe.

"And this way any gene that isn't working or has gone wrong in some way has a matching one from the other set that's probably okay. Sort of like you'd pick two apples in case one of them had a worm in it.

"Now if both sets of chromosomes were exactly the same, and one of them had a bad or broken gene in it, the other one would too, right? And so there would be no way this bad gene could be replaced by a good one from the other set.

"Is that clear? This is important. Because brothers and sisters have the same sets of chromosomes, from the same parents. Well not exactly the same, but close. Too close. So when I inbreed animals there's a lot bigger chance that the babies will have something wrong with them. And when I crossbreed they are always healthier.

"I'm sorry if this is sounding complicated. But I'm trying to make sure you understand why people who are brother and sister or parent and child shouldn't make babies together. You have to be very sure of this, because you're starting to grow up now. Jay will be able to have children in just a little while, and so will Robin, and the rest of you aren't far away.

"Do you understand this rule, and why it has to be followed?" Everybody nodded. "Good. Now I see some of you looking puzzled, so I'll say quickly that the brothers and sisters rule doesn't apply to you five, because none of you are biological brothers and sisters. At least there's only a very small chance that you are. You know that, at least I think you know that. You grew from eggs and sperm that were saved when all the people died. And your real fathers and mothers have been gone for many hundreds of years.

"So you are all brothers and sisters because you love each other and you've grown up together. But you're not even related when it comes to your genes and chromosomes. That means you can all make babies with each other and not worry."

Emily ostentatiously pretended to put her finger down her throat. "Yech!" she pronounced.

"You don't have to, of course," Sylvia added quickly. "You three girls are the only mothers there are, though. There are still seven eggs left from before, and sometime I want them all to grow into babies. But that's up to the girl herself.

"And there's lots of sperm in the freezer if anyone wants to do it without help from Robin or Mac. Again, that's your decision. Your daughters and granddaughters will have the same chance, so don't think I'm pushing you in any direction.

"But you can all see that we'll have to keep very close track of who is related to who. Not for you, but for your children and the generations after them." Agatha held up her hand. "Yes, Ag?"

"Sylvia, who gets to decide about making a baby, the girl or the boy?"

"How do you mean, decide?"

"Well would, f'rinstance, Robin decide to make a baby in me, or would I decide that? F'rinstance." Robin looked a little alarmed. Sylvia, as she had throughout, held an utterly neutral expression firmly in place.

"Both of you, dear. Always it has to be both of you." She thought briefly about moving the discussion on to recreational versus procreational sex, but decided no, not now. "Emily, you looked like you had a question?"

"If I don't want to have babies do I have to? I mean if there are only three of us and I don't, that would be sort of unfair, isn't that what you mean?"

"Em, it would be really good if you did become a mother. You and I'll talk about that privately some time. But no, you don't have to if you don't want to. It's your body, darling, and no one has any right to use it except you. Nobody, not any one person and not all of us. Mac?"

"Same thing for the boys?"

"Absolutely. But that's not likely to be a problem."

Jay and Robin, together as always, walked slowly down the worn Beach Road. They were equally sober, full of their approaching fertility and its implications.

"Sylvia did tell us a long time ago that The Girl was just our borrowed mother. But... did you ever think that I wasn't really your sister?"

"Of course not."

"I always thought we'd just keep on being together."

"Me too."

"Do you still want to?"

"What else would we do?"

"Well, I think Sylvia wants you to make babies with the girls."

"Yeah, I know. I don't like to think about it."

She took his hand. "I'm glad. I didn't like the idea one bit. Is it okay with you if we just do it together, just you and me?"

"Yeah, that's what we should do."

"And maybe have one baby from the old people's eggs?"

"Sure, if you want. It'd be like getting something neat from the ruins."

CHAPTER 39

Emily wanted a bicycle, and she didn't want to ask Sylvia for it. She could feel puberty creeping up on her -- eleven to thirteen the book said -- and didn't want any moral debts to her account when that happened. So Mac was applied to.

"Sure I know what a bicycle is. Lots of them in the movies."

"Could you make one?"

"Could I make one if I wanted, or could I make one when there's time?"

"Both. Can you, and if you can will you. I really want a bicycle and the only way I'll get one is if you make it. All the stores are sold out."

She had that habit, of dropping literary allusions into ordinary conversation. Mac was always slightly uncomfortable with her because of that sort of thing. Sometimes she seemed to live more in the places inside her books than here. But a bicycle, well that was something interesting. He'd imagined the device himself a few times, how it worked, what its hidden things had to be -- bearings and valves and springs and cables.

"Let me think it out, Em."

She was satisfied. Mac was very literal. She understood that he wasn't putting her off, that he did mean to study the hard facts of bicycles until he knew whether or not he could make one for her. She thanked him and left for the library, turning over in her mind what she could do for him that would balance the favour.

Mac, who had been going to the shops when she stopped him, continued on his way. He had a larger puzzle on his mind right now than bicycles. How to get into direct communication with the big computer he had been bumping into for three years now, since he'd helped with that roof.

Sylvia hadn't been much help, although she'd told him everything she could when he'd asked. Daddy she called it. No, Pop. Or was it Pappy? He made a note to get the right name from her sometime.

She knew the computer well, but the way you'd know a person. She had no idea how it worked. She could talk to it by thinking at it, but he couldn't. It had no way to talk to him anyway. It knew about him. She said so. And whenever he was where something was happening, work on a building or in the shops, the robotics seemed to act friendly. And they were truly dumb, so it had to be the computer that was running them, of course.

What else did it do? Probably everything that Sylvia didn't do. Power. Building. Fixing. All the stuff in the main buildings. All the stuff in the shops. Mac stopped right in the middle of the road as the list of what happened automatically, all around, every day, ran itself through his mind. It made everything. The robotics in the shops couldn't do all those wonderful fabrications by themselves any more than the pigs could. Less so. The pigs were pretty swift in their own way.

A robotic, towing a large hopper of gray powder, had stopped behind him, unable to pass. He stepped to one side and climbed on as it rolled by. Papa noticed this, although the robotic seemed not to.

When the load had been admitted through the pig gate Mac hopped down and watched it rolling off to the dumping hole. He'd followed this material before, at some risk to life and limb, as it was separated and reduced and processed into a number of useful materials, notably metals. As far as he could discover the powder was just the junk that had been taken out to make seawater fresh.

He could hear activity in the machine shop, and took his shortcut over the metals bins and along the overhead conveyor. They were casting, and light from the furnaces and liquid metal lit his way as he climbed down a quiescent piece of machinery.

No sooner had his feet touched the ground then he was grasped from behind, lifted, carried to the far corner of the foundry, and deposited like a load of firewood. He got to his feet and tried to step around the robotic that had committed this indignity. It moved a tool and blocked him. He tried the other side, feinted, then ducked underneath. The robotic was faster.

He backed off, looked around, picked a tong attachment from its rack, and whacked the robotic as hard as he could across its sensor box. It

dropped satisfactorily in its tracks. At this moment a great whoosh of sparks erupted, filling the furnace area with smoke and incandescent tracery. A minute later there was a loud whirr-clank, whirr-clank as white-hot slabs of newly-poured metal were fed into a large machine and there thumped and rolled and formed into shapes which Mac didn't recognize.

He did recognize that this was the machine down which he had just clambered, however, and looked at the inert robotic. He probably owed it an apology.

The woodworking shop was idle and empty when Mac wandered in. He liked it the best of all the workplaces, perhaps because Papa had found it impossible to invent better techniques for wood, and so had followed the books quite closely in designing this shop. A Twentieth or Nineteenth or even Eighteenth Century woodworker would have found himself quite at home here. The machines he had made some slight improvements on, but they were yet recognizable as saws and planers and shapers.

And, again because wood was not a logical and reasonable material, he had made a comprehensive set of hand tools to the time-tested designs, for use by the robotics. Mac had been here many times since he first discovered this shop, and Sylvia would have been surprised indeed to learn how much book time had accompanied his practical acquisition of woodworking skills. He was by now quite contemptuous of most work turned out by the robotics.

He pulled a piece of paper from his pocket, spread it on a bench, and walked back to the lumber racks for materials. Two or three hours later his stomach said suppertime, so he tucked his work-in-progress away in a corner and headed home. Bicycles. Hmm.

After supper, when they were alone, Sylvia asked had he done something to a robotic at the shops.

"I bashed it. It had me cornered."

"Is that the whole story?"

"Well, no. It hauled me out of the way when a machine was going to start up. Probably kept me from getting hurt. I thought it had just gone strange. Tell the computer I'm sorry."

She looked at him with an expression he didn't recognize, then spoke in a raspy baritone. "That's okay, kid, it's fixed already. But you owe me one."

"Wow" said Mac.

"Isn't that strange" said Sylvia.

"Was that the computer, whatzitsname?"

"Papa. Yes. And that's the first time in -- thirteen hundred and sixteen years he's talked to anyone except me. I said you were asking about him, but -- that is strange."

The next day there was a surprise waiting for him when he got to the carpentry shop. He had left a stack of material in the corner the previous day, some glued-up, some shaped, some still lumber. Now the place was full of robotics, the machinery was buzzing and whining, the air was thick with sawdust, and his material in the corner had become a completed drafting table. His sketch was tacked on top.

He checked it over. It was well done. He measured it. His drawing had been followed exactly. He looked around. There was no one to thank. The robotics were busy and ignoring him.

So he picked up the table, found the most comfortable way to carry it, and set off for home. Why had the computer -- Papa was its name -- why had it done this? Computers don't get points for being nice guys. His project wasn't in the way. It must have been quite an effort to figure out his rough drawing.

The problem was still in the back of his mind when he finally got the drafting table home and upstairs to his room. He pulled up a chair and sat. The height was good. Comfortable. It was solid. His sketch was still pinned to the top. He looked at it. Well, Papa, maybe this is how we communicate. I will if you will.

He spent the afternoon in the library taking notes and making sketches. Supper was bolted, sorry but he had something to do. Upstairs he gave the new table a good inaugural workout, transforming all his library research into one large, thoroughly detailed engineering drawing. By the time it was finished he could do nothing but go to bed. First thing in the morning, though, his design would be pinned up to the machine shop door. I will. Let's see if you will.

CHAPTER 40

Emily thought she'd spotted Mac heading for the beach earlier, so when she and Jay finished the curtain they were doing she decided to take a break.

"You're okay by yourself for awhile?"

"Come on, Em, it's not even showing yet. Of course I'm all right. Why don't you take something to eat. It's almost one. He'll be hungry."

"Jay, you have a terrible mind." But she did pack the wicker basket full of sandwiches and fruit before pedalling off, with dignity and at speed, down the Beach Road. He was swimming when she arrived. She spread the blanket -- well it was a picnic so a blanket had to be brought -- then unloaded the basket, undressed, and lay down in the hot sun.

Mac became aware of all this only when he came out of the water.

"Hello?"

"Hi, Mac, I brought lunch."

There was nowhere else to go. He shook off as much water as he could and joined her on the blanket.

"You're going to burn, Em. You, ah, haven't had much sun." He tried to look at the food.

"Are you being embarrassed, Mac? We've seen each other naked all our lives."

"Well, not lately I don't think." He selected a sandwich with a lot of care, and lay back to eat. She continued sitting, looking at him, mulling over her idea.

"Mac, my bicycle is the most wonderful thing anyone's ever given me..."

"Aw that's okay... "

"Shh, let me finish what I want to say. I love my bicycle because it lets me fly, and because I wanted it for so long. I've been thinking what I could give you to say thank you. And what I finally decided was me."

He continued at the sandwich.

"At least my virginity."

He looked over at the basket and selected an apple, lay back, and bit.

"Don't you want me?" She was not at all sure, despite the depth of her reading on the matter, how well or poorly it was going. He tossed the apple and turned his head.

"The big computer made the bicycle, you know. And a dozen robotics. They should get the thanks."

She didn't know what to say to this, and so simply sat. Tears welled. Mac saw them.

"Emily· "

"Mac· "

And the afternoon proceeded as it was supposed to.

CHAPTER 41

Emily and Agatha lived in the Quarry House, it was theirs. They had brought five children into the world here, and they were carrying the sixth and seventh. And they're old eggs, Sylvia. We're wallowing around like this for you. So how could you think of putting Jay and Rob and four more children in our home this way?

Since five of the nine were officially in school and therefore under Emily's tutelage all day anyway, and since Robin had taken to eating both lunch and dinner on the job, Sylvia didn't find the temporary billeting too earth-shattering.

"Just five or six more weeks and the Farm House will be ready to move back into. Hang in, ladies. They are relatives after all. They'll do the same for you if this place ever needs rebuilding. Come on now, try to make it just a nice visit. The kids are starting to pick up your bad feelings."

Agatha was icy. "We'll thank you not to tell us what's wrong with our children."

"I wasn't... "

"You have nothing to do with our children."

"Agatha, I didn't mean... "

"We're their mothers. They're our children. Em's their teacher and Jay's their doctor. And when you come right down to it Robin puts the food on our tables. I'm sure we're all very grateful to you for bringing us up, Sylvia, but that's done with. Let go, will you. Just let go."

Sylvia looked at her for a moment, then across the room at Jay, who was trying to soothe a crying baby across her shoulder and at the same time spoon glop into a resisting toddler. She didn't look up. Sylvia considered her options, said good afternoon, and left.

Walking back to the main complex, she found the confrontation turning over and over in her mind. It had shocked her, the animosity. There was more to it than just resentment at her moving in the other

family. By her silence Jay had seconded Ag's outburst. She had agreed. But where was the anger coming from?

She couldn't unravel it. This time, this part of growing, was as new to her as it was to them. Was it really what Ag said, that they felt she was hanging on to them? Couldn't they see how hard she was working to step back from their lives? Halfway down the road she called up the washing machine and flew over to the sheepshed. There she spent the rest of the day with Rob, lambing. He didn't speak much, which did her mental state no good at all.

She offered him a ride home, since the lambs had no sense of time and kept them in attendance until long after dark. He said no, he'd take the milk cart so he could ride it down in the morning. The robotic rolled up at his whistle. "Quarry House" he directed. "Good night, Sylvia. Thank you for the help." The dark swallowed him up. She listened to the departing cart until there was nothing left but night sounds from the animals.

Inside Tony's Bar & Grill, beside the washroom in the main building, Sylvia tried to imitate life. She turned the ceiling lights on low, then the neon beer signs behind the bar. Her 'next up' selection brought a Star Trek segment onto the TV. She stacked the whole Sinatra collection, low, and switched on the artificial fireplace. The pseudo-Naugahyde easy chair did no more for her than the rest of the piled-on ambience.

The girls -- the women -- were good, loving mothers. They had solved the boredom and pettiness of motherhood quite exquisitely, she thought, by specializing. And working hard to become in the one case an excellent teacher, and in the other not a mean country doctor. Agatha, well. Maybe she felt stymied. She'd said looking after the little ones was all she wanted. That's what she'd said.

"Hi. The bar still open?"

"Mac, what are you doing here?"

"I was sleeping at the site and heard music."

"I'm sorry, I didn't think anyone was down here. Would you like a cider?"

"I'll get it." He stepped around the bar and drew a glass, carried it out and sat in the other easy chair by the electric fireplace. "Something bothering you?"

"Oh, everybody camping in one house is a bit of a mess."

"Yeah, I bet. I notice Rob's staying away as much as he can. Poor bugger."

"Why poor?"

"Three women and their kids all in one house. And just him for them to bitch at."

"That's pretty sexist, Mac."

"Maybe. Probably. I dunno."

"I always thought you liked women."

"Hell, I'm father to five kids. That takes liking. But one at a time."

"I'm not sure this is any of my business, but aren't you ever going to move in with Ag and Em?"

He leaned back into the chair and took a slow sip. "I've been thinking about that too. They've been hinting lately, quite a lot. And the more I think about it the scarer I get."

She let that be for a couple of minutes, then followed another train of thought.

"You five were my babies. At least that's how I felt about you. But I'm thinking it wasn't a very natural growing up for you. Do you feel somehow that you, that I -- haven't allowed you to grow up all the way? Have I kept strings on you, Mac? All of you I mean. That's an honest question. I don't know, and I think I need you to tell me." She lowered Sinatra even more, and killed the Star Trek sound completely. This without consciously thinking about it.

"An honest answer, I don't know. Ag's been sulking for most of her life about how she got a bad break by being female. That hasn't changed since she was ten. She gives me static about Papa, for instance, how he ignores the girls and just works with me. Hell, he won't work with Rob either. Doesn't like Rob using his robotics on the farm.

"Strings on us. I don't think so. We're all pretty independent. Sort of tied together making things work, but no, we all left the nest okay."

She couldn't put the afternoon's unpleasantness away. "Is there any other reason why -- I guess all the others -- why they would resent me?"

He looked her in the eye. "Yeah." He assembled the list in his mind before giving it. "Because you're perfect, and they're not. Everything they do is kind of stuck in the mud compared to you. You can fly. They have to walk. You can talk to the machines by thinking. You can decide on things and get Papa to do them. You know about the world because you've seen it. They haven't. You were there when people were everywhere. They look at the movies and then come out and count."

"More?"

"They're getting older. You aren't. They're going to die. You won't."

"Do you feel the same way?"

"No, I don't resent you like that. But you do make me feel sometimes like what's the point of trying something when you've probably already got it all figured out."

"Anything else?"

"What can I say? You're who you are, and you do the best you can. And if the rest of them thought it out properly they'd realize they're dumb to compare themselves against you. But if it gets in my way sometimes, I think it gets to them worse."

She had always secretly favoured Mac, for his direct and independent nature. She wished now that she had been less scrupulously fair as they were growing up.

"Thank you. Outside of Papa that's about as much honesty as I've ever had at one sitting. Do you feel like talking some more?"

"I'm pretty tired, but yeah. I think you need it."

"What you say makes me want to ask for help. In the sense of what should I do to make things better. And that's not a fair thing to do to you. Yes, I am who I am and I do the best I can. And I have no complaints.

"I shouldn't be hurt by what you've told me. I should have picked up that sense of differentness. Alienation. Hellfire Mac, I *am* alien. But I'm also awfully damned human. And just now I recognize something else. I'm awfully damned lonely. You make me feel lonelier than I have for a very long time. No, don't feel badly, feel good. You've reminded me of something I'd almost forgotten, what a lift it is to talk even-up to an adult human being. You're a good man. I hope it's in your genes. Can I come back and ask you again what your plans are?"

"About moving in with Ag and Em?"

"About your life."

"Huh. You know, Papa asked me almost the same thing. He wants me to work with him full time. Apart from the construction. He thinks we should do all the designing for people things together."

"Are you going to?"

"Nope. He's really good, and I keep learning from him. But he's too bossy. He doesn't listen very well."

"What then?"

"I'm not sure. I think I'll have to get away by myself."

"Leave here? To go where? How would you get by?"

"Yeah, I think leave. And figure out the rest when I get to it. I haven't thought it out all the way, Sylvia. I'll tell you when I know, okay?"

"Okay." She recalled, irresistibly, her Grand Tour.

"Gotta hit the sack. I'm done in."

"Why don't you sleep here. Pull up this chair to that one. I'll get blankets."

They arranged a bed, and he was asleep before she had all the ambience turned off.

CHAPTER 42

Everyone knew that Cary and Ingrid had a good thing going, finding metal and selling it to the foundry. Not everyone was equally pleased for the pair. "It's not fair," was a frequent observation, "they get bikes and I (we) (the rest) don't."

Still it was inescapable that the two were working diligently and successfully at the scrap metal trade, and that they were riding. This planted the occasional entrepreneurial seed in the weedfields of discontent.

They had asked Grandpa Mac during his last visit if there was anything they could do for him that would be worth such a wonderful prize. He had thought it over and set up the present arrangement, with Papa's blessing.

He got them the metal detector and showed them likely areas. They would pick up the detector and shovels from the barn after school or on free days, and head off for the mounds. Their day's gleanings were piled on the spot and the detector left on top. That night a robotic made the pickup and hauled it to the metal shop where it was sorted and weighed.

Each morning they would call up their balance on the reader, and make best guesses as to why yesterday's haul had received such a high or low rating. They earned their bicycles within a couple of months. Although Mac had departed by then, he had devised a short list of further desirables which Papa could produce, and left pictures of these, together with their prices, in the reader.

Emily and Jay, who were both avid antique collectors, had developed the habit of checking the metal bins every few days, and claiming anything wonderful before it was melted down. Thus it was that they discovered the safe.

The two children had found it, tried valiantly to dig it out, then simply marked it where it stood, embedded in a mound, with the metal detector. Now it was in the bin, scraped down to recognizable form by the robotic scrap manager. It sang the two antiquarians a siren song.

What treasures might it hold from the misty past? Mac being away, Sylvia was called upon to negotiate with the scrapyard owner.

"It's hollow, Papa. I need you to open it up, but carefully. If there's anything inside we don't want it to be destroyed. Can you be gentle?"

Papa, through his manager, eyed the lump, then thumped it with the end of a crowbar. "You sure it's hollow?"

"It's a safe. I've seen them, I know about them. This is the door, see the hinges? It was made so nobody could get inside who wasn't supposed to."

This sparked interest. "Can you find me some references?" She set him up with several safe books that were studded with pictures and diagrams. He studied and became a theoretical safecracker.

Em and Jay, Cary and Ingrid, and one or two interested others were on hand for the opening. Em stood everybody at a cautious distance, and nodded to Sylvia that the show could start.

The safe, now moved to the open yard behind the metals warehouse, had been further scraped and sandblasted down to shiny, deeply pitted metal. Papa's manager sparked its torch, adjusted it, and set to, cutting delicately along a series of lines chalked around the door. This done it ran a thin slip of metal into the cuts. Satisfied, it moved the torch out of the way, picked up a sledgehammer, and proceeded to swing mightily at the periphery of the door. Before it had completed this rectangular circuit the door fell forward to the ground with a solid thump and a splash of dust.

"Everybody stand back, it's very hot." Emily waited until the dust had wafted away, then stepped gingerly up to the fallen door and peered inside.

"There are a lot of little drawers. They're wood, but they look in perfect condition. I'll see if I can get one out." She moved with care onto the door, placing her feet between the still-smoking cuts, and bent forward to select a drawer. Sylvia had moved to her side, and now spoke in a whisper.

"Emily, don't touch anything. Back away." Her tone was not to be disobeyed, even by a salt-and-pepper schoolmarm. Emily stepped back.

"What's wrong?"

"The wood. It means the safe was sealed. It's been airtight all these years."

"That's obvious."

"Think, Em. When was the last time this door was open?"

"Probably near the end... oh. Oh Sylvia, is it possible? Do you really think... "

"Some viruses can get into a waiting state where they're almost immortal. Tell them something that will get them away from here fast."

Emily focussed her expression for a second, then turned. "Everybody leave, quietly and quickly, and go to Jay's house. There are old explosives inside." She warned Jay with a look to ask no questions.

When the area was empty of people Emily looked at Sylvia with pure horror on her face. "What can we do?"

"Burn and quarantine. I've already called for the safe to be burned where it is. You and I will have to isolate ourselves and wait it out." She took Em by the arm and led her to a far corner of the compound. The oxygen/hydrogen tanks were being wheeled out.

"Do this quickly and with economy, Em. Farm out your work for the next six months. Think up a good lie about your absence -- we can't have everybody scared silly. Make a very tight list of what you'll need, clothes and whatever. We'll take as much as we can now in the washing machine and I'll arrange a pickup spot for the rest. We'll need dried food and camping gear... " She loaded on do-it-now details, wanting to get Em busy and keep her that way right now. She had too much imagination. She'd read too much. She'd quizzed Sylvia too closely on the diseases which had emptied the world.

They watched silently as the robotic played its twelve-foot tube about the safe's interior, vaporizing more than burning the contents. Jay and

a dependable son-in-law had been told a workable story, and were already busy loading the washing machine. Sylvia for some reason felt almost exhilarated.

By late afternoon everything had been done and they were on their way. Emily hadn't been up in the washing machine since she was a child, and sat as low as she could on the piled-up cargo, still too high within the bubble for comfort. Sylvia was careful to keep her craft flying straight and level, and stayed high enough that their ground speed wasn't obvious to her passenger. She had been turning over an idea, and tried it out now, while events still had Emily off her tracks and hopefully receptive.

"You lead a very busy life, and that's kept you close to home. Have you ever taken a real holiday?"

"Twice. Sailing with Mac. We went to Baja once and to the Queen Charlottes the other time. That was a long time ago. I remember both trips very clearly."

"We have several months of quarantine, and it seems to me there's no reason to just camp out somewhere and be bored. Would you like to use this time to travel? I think that would be very useful to you as a teacher. You could decide where we should go. Would you like to do that?"

Emily's face had set long years since into Authoritative Expressionless. Sylvia watched in fascination as the mould cracked at the edges, then splintered completely into the grin that had been waiting to be set free for three decades.

Two days after Sylvia and Emily left for their sudden holiday, Papa adjusted the found metal account. After following Sylvia's directions to decontaminate the safe, he found that he was left with a little over sixty percent of the weight he had given original credit for. Sylvia had caused the loss, but on the other hand the find was in itself faulty to need the OH treatment she had called for. He decided that the responsibility for his shrinkage should be split 75/25, and so

deducted nine and a half percent of the safe payment from the Cary/Ingrid account. They were not pleased, since no explanation accompanied the adjustment. There was, however, no one to complain to. And as chance had it they came upon a seven-foot circular vault door and its frame in the same mound the next day. A skateboard and a half at one stroke.

CHAPTER 43

Sylvia checked in with Papa occasionally, to keep an eye on things. She found travelling with Emily engrossing, however, and spent virtually all her time and attention learning many strange things from her companion.

In New York they had flown up and down Manhattan, stopping here and there to check out likely-looking hills, and landing in clearings in the forest which seemed to contain ruins. Emily described the life that had once filled this green island.

"Time Squared was a place of deep religious meaning for some of the earlier tribes, such as the Bronks and the Queens. They believed in the magic of numbers, you know, and they would all congregate in this place at Year End and count backwards in order to ward off death and taxis.

"And down there was the Battery, whose inhabitants were excluded from the Manhattan tribe. Across the water, do you see that island with the square stonework showing? There used to be a huge statue on it called the Statue of Limitations. There's a curious story about that statue. One of the Manhattans' enemies, the Redcoats or the Redskins I believe, laid siege to the city for a long time without success. Finally after seven years they had the statue made and set up on the island one night. It was hollow and full of soldiers, who crept out later and drank tea. No, I'm wrong. It was the Redsocks tribe, I'm sure now.

"Right in the middle was Central Park where they held traffic jams, which were music festivals. And underneath the whole island were tunnels that the slaves used when they escaped. Madison Square Garden was somewhere in the middle there too. It was the centre of vegetable worship, where they went into frenzies with rhubarb and raspberries, and actually fought for peanuts, from what I've read.

"Sylvia, I can't tell you what it means to me to visit where these wonderful old legends began. I *will* be a better teacher for having been here and looked for myself. It's too easy just to believe everything one reads. But now I've actually *seen* the Bad Apple. That was the fruit they venerated above all, you know."

CHAPTER 44

With Emily's steady hand absent from the wheel, school discipline ran off its true course from time to time. Jay was no teacher, and in any case had her hands full with two new grandchildren in the house, a fractured femur and lacerations in the infirmary, and an imminent delivery. She had delegated to Ag, because of her seniority. Agatha in horror had redelegated to Emily's youngest, Peggy, who had no offspring of her own as yet and so was the obvious choice to supervise and instruct thirteen children ages five through sixteen.

Sylvia's old Cryo lab had become the schoolhouse in the early days of Emily's schoolmarmship, but because of the patient next door who wasn't sleeping too well Peggy moved classes to the museum for the duration. This was an error in judgement. There were too many distractions at hand, and Peggy had no gift at all for Authoritative Expressionless. The best she could do was put the oldest to controlling and possibly teaching the youngest while she tried to keep the rest from breaking things.

"Spencer, Shirley, Duke and Ringo, you're doing spelling and arithmetic today, and Ronnie, Audrey and Lauren will be your teachers. Audrey, Duke needs extra work on his times tables. Are you going to behave yourselves if I let you go down to the gazebo?" Oh yes, yes, yes Peggy.

"Okay, but any ruckus and you're back inside. Off you go." They trooped out, the two oldest picking up portable readers as they left. Peggy watched them until they were outside. Seven down, six to go.

"Cary and Ingrid, you can work on your minerals project at the back on one condition. Rock stays with you to help with the periodic table. Rock, you're there to learn too. Get them to work with you on oxides and sulphides. Away you go."

Three left, but they were the real backbreakers. Daisy Mae, Edward Gee and Humphrey. Two tens and an eleven. Peggy squared her shoulders. Her mother tended not to discuss her working day at home, and rarely mentioned individual students. But all three were well known to Peggy long before she got this call.

"All right, Edward Gee and Daisy Mae, you have a Botany test this afternoon. I hope you've studied for it."

"This afternoon? You said it was next week."

"That's right, I did say next week. I said it last week. After lunch today."

"Aw, we didn't understand. We thought "

"Right after lunch. Humphrey, I don't know what you're grinning about. You have a composition due today that I don't seem to see on my desk."

"Oh yikes, I was going to tell you. I was bringing it in and I must have dropped it on the way to school. I'll go look for it now."

"Humphrey, do I look stupid?" She ignored the peer-group titter.
"Okay, here's paper. I want you to write out your composition right here, right now. It shouldn't be too hard for you to remember it."

Humphrey, with no way out, walked slowly to the front of the class and accepted the proffered paper. "Can I go work in Tony's? It's gonna take concentration." She considered the request and found it fair. He'd be away from distraction and, although out of sight, quite secure. The only way out was back up the corridor and past her desk.

"All right. You have from now till lunchtime. If I don't have that composition in my hand by then, you'll eat lunch there and stay until it's done. Those are the terms. Agreed?" He agreed and walked off, moonwalking a few steps when her back was turned.

"What am I going to do with you two? Have you done any studying at all for botany?" A little. Sort of. But really, you did say next week. "I'm not going to argue, Daisy Mae. And I'm not going to postpone the test. You were told this afternoon and this afternoon it will be."

They looked at each other glumly. Peggy was not so long out of school herself that she couldn't feel a certain empathy. She relented, and looked for a way out for them. This was another error in judgement.

"I've just given Humphrey a break, I guess I should do the same for you. You can study the rest of the morning for the test, if you're quiet."

"Can we use the big readers?" Only one of the portables remained. "We study better together. We can practice questions and answers." The main reading room had the same safety factor as Tony's, there was no other way out. She assented and they too padded off around the corner and down to the library.

Peggy felt rather clever. The problem three were off her hands and guaranteed to be hard at work for half a day. She brought up the remaining portable and keyed in her next instalment of Soap.

Out of sight, the three stayed at their tasks with grim, superhuman determination forever, until they could absolutely not stand the strain for one more second. Say half an hour. Humphrey appeared at the edge of vision, tiptoeing in an exaggerated fashion toward them from his cell at Tony's. They pointed. He nodded and stepped into the washroom, where they joined him.

"Boy, I gotta take a break."

"Me too."

"Me three."

"Well the can's no fun."

"She can hear anywhere else."

"Got any better ideas?"

"Matter of fact I was planning to go exploring."

"Yeah yeah."

"Through the robotics' door."

"Nothing good in there."

"Howjou know? Ever been there?"

"Have you?"

"Nobody has."

"Not till now they haven't."

"You really gonna?"

"Sure, why not."

"Okay, me too."

"Me three."

Without further discussion they filed quietly out of the washroom and down the corridor. Humphrey waved them to wait, ducked into Tony's Bar & Grill, and reappeared with a big flashlight. They continued to the end of the corridor and grouped around a four-foot-high door of scuffed stainless steel.

"Is it locked?" A tentative poke revealed that it swung easily inward. A firmer poke brought the comforting knowledge that it swung outward just as easily. Humphrey, with the flashlight, led the way through.

Two robotics had held the same jobs in the main building for well over three hundred years now. To point this out is to beg the question 'yes, but are they the same robotics?' And unquestionably they had both had every nut, bolt, gear and chip replaced several times in routine maintenance overhauls during their working lives. Much the same can be said of humans, however, who it has been estimated become new men and women approximately every seven years as individual cells age, die and are replaced. Robotics are like humans in their inner natures, too, in that they undergo a sort of hardening of the personality arteries with age.

For three centuries and a couple of decades this pair had been cleaner/bouncers. Papa wanted nothing of the outside world inside his new Capsule, and at the time of building told off these two to keep Sylvia's world at bay, from mosquitoes to pigs to nesty barnswallows. Obviously the End Use Area had to tolerate people coming and going. From their wing the two robotics kept worried sensors on all such visitors, and at departure hurried out to excise muddy footprints,

finger marks, dust and orange peels with infinite diligence. They disappeared when humans were around, to occupy themselves keeping Papa's part of the building inorganic and operating-room clean.

They were equipped to chase out such intruders as squirrels and spiders quite efficiently. They had never in their long and honourable service faced an invasion by humans. Their first instinct was to shoo.

"Look out, Humphrey!" Humphrey had already seen the robotics advancing side-by-side along the narrow passageway toward them, flailing their dusting attachments ferociously. He had devilled robotics before, and knew at least one of their Achilles' heels.

He simply stopped and held his ground. They squealed to a halt, still dusting furiously, striking his face and body with exactly enough force to remove dust. At length, this not producing the desired results, they backed away and disappeared.

"What happened?"

"It's built into them, they gotta stop before they bust anything, unless they're supposed to bust it. I knew they wouldn't hurt me."

"That's neat."

"Let's keep going."

"Where did they go?"

"Down this way. See, there they are."

"They're different ones."

"Different attachments is all."

"What're they doing?"

"Still trying to... hey! Stop that! Ow!"

The robotics had charged with three-foot-wide pushbrooms and upended Humphrey. His flashlight went sailing and broke. In the dark the other two could hear terrible grunts and thrashings.

"Run, Humphrey, run!" They were making best possible progress rearward in the dark, but Humphrey wasn't following. They stopped and listened. Humphrey was still where they had left him, making peculiar noises.

With Humphrey down and immobilized in the total dark, the robotics had gone to work. First they did him all over with attachments which beat as they swept as they cleaned. Next, with different attachments, they covered his whole protesting person with cleansing foam, which they then vacuumed off. His sandals had gone immediately. The vacuuming removed his shorts. The robotics considered their work, and decided it was not yet complete. Out came hot water, strong detergent and scrub brushes.

"We better try to save him."

"He sure sounds funny."

They rushed very slowly back, feeling their way along the passageway. Humphrey was quite near, just feet in front of them. He sounded almost like he was underwater. The robotics finished their rinse, polished him dry, and departed to pick up other attachments. The two children bumped into Humphrey, helped him to his feet, and made good time back to and through the swinging door.

"What'd they do?"

"Boy are you clean!"

"What on earth?" Peggy had arrived with instinctive timing that would have made her mother proud. "What have you three been up to? Humphrey, you're naked. What is going on?"

"Humphrey was attacked by the robotics."

"They dragged him into their hole."

"We had to save him."

"It was awful. We fought and fought... "

"Humphrey, the truth, how did you get into that condition?" She couldn't miss his glowing pinkness.

"Like they said, Peggy, two of 'em jumped me before I could do anything. And hauled me in there and thumped me something awful until these guys rescued me."

The little door swung open behind them and two sandals and a pair of shorts were fired out. Peggy picked them up. They were very clean. She handed them to Humphrey. "Here." He put them on and the four walked slowly down the corridor.

"All of this," she thought out loud, "has interrupted your studying so much that it would be pointless for you to try your test, I imagine." Daisy Mae and Edward Gee confirmed this hypothesis. "And I assume that they kept your composition, Humphrey?" Why yes they did, come to think of it. Peggy sighed, and hoped her mother was having a good time.

CHAPTER 45

They visited ruins and more ruins. Old ruins, new ruins, it was ruins or scenery. They poked, walked, climbed, burrowed, picking up almost nothing, with regret. The washing machine had no room. Emily sighed the lack of a camera. Sylvia quietly stored key views in her mainframe against the time when their home resources could provide this luxury.

Emily progressed, as the tour went by, from strange information to her theory of history.

"In your time it was the same. The world was full of ruins then, too. That's how people always were. They would build and build until they had a wonderful civilization, fine cities, a great culture. Then they would tear it all down, and wallow around like animals for awhile, and finally start building all over again."

"Read Toynbee."

"You don't have to read, Sylvia. Just look. We've been through six or seven thousand years of wreckage in the last month. People had those two instincts, when they weren't creating they were destroying. Until the last time, when they didn't leave anyone behind to start building again. At least they almost didn't."

"That's not what I remember, Em. There were a lot of builders, and only a few breakers. But the builders were by definition too civilized to just get rid of the destroyers in their midst."

"Well it won't happen with us."

"Why not?"

"We're not builders."

"Come again?"

"We've inherited our civilization intact. We don't have to build it up."

This was not spur-of-the-moment, Sylvia realized. Emily spoke with certainty, and probably taught her attitude with the same certainty. Alarm bells rang. It was time to stop smiling and nodding.

"Do you think that's all there is to it, that things will stay the way they are forever?"

"I think we have the best chance that man's ever known. We have knowledge and technology, and the good earth provides."

"Sorry, Emily, that's not quite how it is. What's in the library isn't knowledge, not until it's in people's minds. And you don't have technology, just the use of it, courtesy of Papa. The earth provides nothing. Hard work is where food comes from, somebody else's hard work. The robotics'."

"We all work. Our society works by everybody doing something that's useful for all the rest."

"Uh-uh. Your society exists because somebody else does all the basic providing. Papa. And his fusion reactor and his robotics and his immense, continual effort to keep the whole shebang in working order. Not to mention the thousands of items that are invisibly manufactured in his shops. No, I'm sorry, you don't begin to look after yourselves."

Emily was silent for awhile after this broadside, and Sylvia felt a little brutal, but she hadn't crushed her schoolteacher in the least.

"Tell me this, Sylvia, wasn't the computer made by man? Isn't Papa a part of the civilization we've inherited? And so the robotics and the power plant and the things that are made invisibly in the shops, aren't all of these our inheritance? Of course they are, and that's what I'm saying. We're free from having to build it all up. We will finally escape from that terrible build-to-destroy instinct."

Now it was Sylvia's turn to remain silent, as she considered both Emily's neat, naive credo and her misunderstanding of the real situation.

"Sure Papa was made by man. He's remade himself considerably since then, but that's a quibble. However, and I think you'd better know this now, you haven't inherited Papa. He's not yours. He's looking after you, but that's his decision, not your right."

"I don't understand. You tell it what to do... "

"No I don't. I suggest. And he follows my suggestions because he desperately needs to complete his program by turning himself over to somebody. I've told him that the only chance he has to do this lies in you people."

"That doesn't make any sense. He's supposed to be a gift from the people of your time to the people of the future, you've said that before. Well here we are. We're the only people on Earth. Yet you say now that he won't give himself to us?"

"He was programmed with a narrow definition of receivers -- who it is he can give himself and the Capsule and its contents to. They didn't want just anybody to get their hands on this gift. You're going to ask me what are the qualifications of Papa's receivers, and I'm afraid I can't tell you. He can't tell me, not in terms that I understand. He'll know the receivers when they come is how we always end up."

"Then what are we to your computer? Don't we exist? Can't he see us?"

"He thinks of you as, and please don't take this wrongly, as an experiment I'm running, a project to try to develop his receivers for him."

"That's hideous. And you allow him to think that?"

"That's as close to understanding you as he's able to get, I'm afraid. It keeps him willing to do all the things he does for you, and that's what's important."

Emily had a lot to digest. She wandered by herself for most of the afternoon through the remains of Ephesus, seeing little, trying to find firm ground for her sense of who and what she was. She rejoined Sylvia with what seemed to be important questions.

"How do *you* think of us?"

"I love you."

"What do you want us to be?"

"Yourselves."

"How can we, when we're subsidized and dependent? Like pets."

"You're human beings. Believe me, Emily, Papa and I are just temporary conveniences. Accept the subsidy while you need it and don't fret about being dependent any more than the kids do. Use."

"And we'll have to build, you're saying?"

"I don't think you have any choice."

"Or about destroying?"

"Maybe. I'm not Toynbee. I hope you do have that choice."

"Sylvia?"

"yes, Em?"

"That was unfair, the pets accusation."

"You'd make lousy pets. No sense of responsibility."

CHAPTER 46

Something was very wrong. Cary and Ingrid were hurrying on foot to their current mound, far into the semi-jungle, impossible on bicycle. Yesterday's tally had been missing when they checked the reader after breakfast. Then, at the barn, a second break in the daily pattern had put the present quick pace to their normally leisurely walk to the site. Their detector wasn't in its place, recharged and waiting for the day.

As they pushed through the heavy undergrowth, following an animal trail that was too low to keep their heads and shoulders clear of overcrowding middle growth, many eyes followed them. This was outside human and robotic jurisdiction, this part of the forest. But here was where their quest for metal had led them, day by day. There were carrier tracks cut through to black earth on the trail they followed. There were other tracks as well, some impressed into the muddy lines made by the metals cart.

"Maybe it just got lost, Ing. This is awfully thick."

"It's been here twice already and got back."

"Stuck in the mud maybe?"

"Some kind of accident more likely. Can it call for help do you think?"

"They all take orders from somewhere, the shops or the crazy building. I dunno if they can talk the other way, though. You'd think they could."

"Cary, what's that? There on the path. Isn't that part of a robotic? Part of an arm?"

"Jeez, it is. Snapped clean at the joint."

"There's more. Look down the path. That's another piece. I'm scared. I think we ought to go back."

"We're nearly there. Let's have a look."

"Just a look, then we're getting outta here."

The trail led to a small clearing where a mound had been laid bare by pigs rooting for something delectable that chose this place to grow in. The two had left their pile in this clearing. It was still there, small because they had wasted a lot of time trying to pry loose something anonymous and far too large. They'd marked this by leaving the detector on top. It too was still there. The metals cart had been backed up to the anonymous lump. That was apparently as far as the robotic got. It had been murdered, brutally. Cary and Ingrid ran.

A party of adults was sent to investigate. They returned with confirmation of the story told by the frightened thirteen-year-olds. Robin and his big cart were fetched, and he set off with three other men to bring back the remains.

Jay somehow had to get word to the big computer. With Sylvia away this was difficult to do. Mac had some way of contacting it, but he was off somewhere too, as always.

The best she could think of was Igor. Her medical assistant could understand most of what she said to it, this she knew because it generally did as she asked. She sat Igor down outside the infirmary, and gave it a try.

"Igor, I have to talk to Papa." Igor remained still. "I'm going to tell you something, and I want you to tell it to Papa. Do you understand?" Igor shifted its weight slightly in what might have been discomfort.

"Here," she handed it a couple of tongue depressors, "if you understand, hold one up. If you don't understand, hold up two. Do you understand?" Igor flipped up one of the little sticks. "Good. Do you understand that I want you to tell Papa what I'm going to tell you?" One stick. "Okay, this is the message. One of the robotics has been killed. We don't know how. The men have gone to bring it here."

Papa received this information at less than the perfect moment. He'd been laying down the law to two upset cleaner robotics who wanted permission to use prods on people, and had the unneeded new problem of designing a passage that would allow his cleaners to come and go but exclude Sylvia's Goddam biologicals. Then the metal-collector had gone missing all night. Now this nonsense from the bio-robotic. What in blazes was it trying to say?

"Goddam it, slow down and talk English (Papa's English). What is this 'killed' gibberish? You've been out with the featherless bipeds (Sylvia's humour, which he didn't understand to be humour) too long. Has it been damaged? Did it have a failure of some kind? Where is it?"

"It's being brought in. Killed means terminated."

"Stay there and tell me what you see. Where in bloody hell is Sylvia when you need her?" Unfortunately he couldn't ring her. The satellite link was in constant use keeping her mind in its mainframe and her body on the other side of the world in working partnership. She had to come back to talk with Papa, which she did only occasionally. It was an annoyance right now. He couldn't communicate with her Goddam people.

"Stay right there, and don't let them muck with the collector. I'll use you to inspect it." Terminated indeed.

Sylvia's navigation was competent enough for most purposes. She had a good atlas at the ready in Santa Barbara which let her get from, say, Madagascar to Afghanistan without too much back-and-forthing. But this arrangement rather fell apart when she was over large stretches of ocean, as was now the case. Easter Island seemed like a good idea when Emily suggested it. Now she was having second thoughts.

Her bearing was correct, she'd checked two or three times already. But the damn island was so tiny, the ocean was so big, and there wasn't anything within a million miles to use for reference. Emily didn't help by complaining about the heat. Sylvia slowed down and cracked the bubble open a mite more. Now it was awfully drafty.

Where was Easter bloody Island? She wanted badly to go up a hundred miles, where she would spot it in a minute. But she couldn't with Em on board. How far had she come by now? Surely she hadn't gone past the stupid rock.

"There it is!" Emily was as relieved as Sylvia. They set down and stretched their legs. Well would you look, most of the heads are still standing.

As they trailed across the barren, windy slope from one inscrutable face to the next, Sylvia had a sudden thought. She had somehow never been here, to this remotest of islands. Had there been people living here at the time of the catastrophe? And if there had... might they still be... and that other one, the Mutiny On The Bounty Island. Get to the library. Find out.

Emily was trooping sturdily on ahead, obviously planning to inspect every single statue. Sylvia wouldn't be missed. She sat down by a head, leaned back, and became absolutely still.

"Sylvia, you're back. Don't go away, I need you." He explained that something garbled but nasty-sounding had happened to a robotic. Would she please go sort it out for him.

"Now? My bod's on Easter Island."

"Well think of something. I can't get any sense through your biorobotic. Can't you use *it*? It's a body."

"It doesn't have vocals. Um -- okay, I'll buckshee up something."

Sylvia entered Igor just as four men were struggling through the Cryo lab cum schoolhouse door with the largest fragment of the deceased metal-collector robotic. Jay and the cluster who had come to view the remains were outside around the cart, rubbernecking at the bits and pieces.

"Where do you want it, Jay?"

"I guess in the corner at the back."

Igor stumped to the middle of the room and began pushing desks to either side, clearing a space. "No, in the middle here" Sylvia's voice boomed through the ex-lab's excellent sound system. "Jay, will you and some of the others give a hand in here, please." This with the volume at a more reasonable level.

Robin looked around, and saw only the medical robotic heaving at one of the desks. "Jay!" Jay came in from behind the men and looked around in turn.

"Did I hear Sylvia?"

"Yes you did," said the speakers, "this is me working out of Igor. Will you get some people in here and clear the centre of the room please. And quickly, these poor guys are waiting." Jay did as she was asked, and the body was deposited in the middle of the floor.

"Bring the rest in and put it here." Igor pointed. Robin and his fellows brought in a couple of armloads each of the fragments they had been able to locate, and heaped these by the corpse. Everyone was in the schoolhouse by now, except Mac and Emily and three babies sleeping (hopefully) in the infirmary.

"Will everybody arrange the desks so they can see and then sit down, please." Igor indicated a circle around the deceased robotic. Sylvia's voice came from above. Few of the assemblage moved.

"Jay, will you ask. Igor doesn't seem to get much respect." Jay organized things and found enough chairs and benches to seat everyone. She at least had figured out that Sylvia was extemporizing.

"Okay everybody, this is important. Please take it seriously. That includes you, Duke. Something or someone did this to the robotic. We have to figure out who or what, and quickly. This was truly vicious."

She asked if everyone knew about coroner's inquests, and wanted to know who had been familiar with the robotic in its intact state. Cary and Ingrid were brought forward, and Sylvia asked them to piece the scraps of metal together in their original configuration.

"Has anybody any ideas at all?"

"Could it have been in a fight with another one?" The questioner spoke to the ceiling, at the speakers.

"Down here, Charles. Igor is me right now. Have any of you ever seen robotics fighting? It's a possibility. I'm asking. No one? Well, any other theories?"

"You said something or *someone*, ah, Sylvia. Do you think one of us did that?"

"I don't know. Does anyone have a grudge against robotics?"

A dozen heads turned toward Humphrey. "Hey," he looked around as another two dozen pairs of eyes found him, "I'm just a little kid. Come on, you guys, I didn't do it."

His contretemps with the cleaners was known more or less accurately by many in the classroom. It was explained to Sylvia. "Excuse me for a minute," she said, and Igor became motionless. She wanted Papa's version of the affair.

He told her the story he'd received from the two cranky old cleaners, then wondered why she would want to know about the earlier incident. Papa was not in touch with the subtleties of the human psyche, but he wasn't slow either.

"Does it have something to do with the terminated robotic? Did your Goddam biologicals trash my collector because they were chased out of the back room? If that's what happened, Sylvia, I will zap the little transients. They're a threat to survival... "

"Hold on Papa, you're jumping to conclusions. That's not your style. Just stay calm and let me try to figure out what happened, okay? That's what you dragged me in to do, isn't it?" Omigod, Emily.

She couldn't leave Papa with this bee in his bonnet. Em would have to entertain herself until things here got straightened out.

Cary and Ingrid were piecing away at the remnants like a big jigsaw puzzle. Humphrey's father was in a shouting match with one of the other men. Humphrey was grinning. Igor moved. Sylvia spoke.

"Humphrey, Daisy Mae, Edward Gee. Stand up please. And will everyone else pipe down. You three, do you know about the big computer? Do you know who Papa is?" They did, and nodded.

"Papa has the idea that you did this." Uproar. Parents shouting. "Quiet!" With Jay's help there was quiet. "If you did do it, admit it now and I'll defend you to Papa. If you did it and don't admit it, that will come out. Papa can reconstruct the robotic's reticular interfarcts from

the memory box and see what happened for himself. If it was you, he will be very, very angry."

This was purest nonsense, but it worked beautifully. The children believed her, and she believed their fervent protestations of innocence.

"Thank you, you can sit down. I'm sorry if you were embarrassed, but we have to find out what happened. Cary and Ingrid, you seem to be nearly done. Is everything where it should be?" As nearly as they could remember. "Okay, has anybody over seen this kind of damage before?" Never.

Igor circled the mosaic of scraps and parts. Terrific force had been used. All the attachments were broken off, many of them being in several pieces. Shreds of metal cladding were crumpled and gouged. The main body, of heavy construction, was severely dented and misshapen. The sensor box had been torn completely free, its inner components mashed and dangling.

"Were there any tracks where you found it?" By the time anyone had thought to look there were nothing but boot prints. "How scattered were the pieces?" All around the clearing and down the trail. A hundred feet maybe.

"I can't think of what questions to ask. Anybody got suggestions? Or ideas? Jay? Robin?"

Robin had an idea, but by nature disliked theorizing. He stepped forward and looked up and down the now-completed jigsaw puzzle. "Can I take a closer look?"

Igor moved back and squatted. "Sure, you know the robotics better than anybody, maybe you can find a clue."

Robin walked around, bent over, stepped among the pieces, picked up and replaced fragments, nodded to himself. No one spoke. All eyes were on the square, slow, respected farmer.

He stooped by the torso and ran his finger along a deep indentation. Then he grasped and heaved, and rolled the whole thing on its side. "Bud, Lou, come hold this." The two solid sons stepped in and held on.

Robin, on his knees now, poked his face close to the metal and squinted. And grunted in satisfaction. "Got anything that'll cut metal?" he addressed Igor/Sylvia.

She dipped into Igor's assortment of surgical attachments and snapped on a circular bone saw. "Where do you want cut?" Robin marked a 'U' with his finger. Igor cut, noisily, with sparks, probably ruining the blade. Robin opened his pocket knife, pried back the flap, peered inside, probed with the blade, and extracted something white.

"Okay boys." They lowered the trunk and went back to their wives. Robin stood up, flexed his knees, closed and pocketed his knife, and stepped out of the wreckage to Igor. He offered his find.

"Boar's tooth. The pigs got it." Cheers. God, poor Emily.

"Robin, bless you. Thank you all. Jay, will you clean up. I'll give the word to Papa. I've got to run." Igor slumped, then became Igor again. The classroom buzzed. Robin's back was pounded. Children wanted to see the tooth. Three babies awoke and began crying simultaneously. Sylvia gave a two millisecond report on the findings and fled back to Easter Island.

Her worry about Emily was quite wasted. The energetic schoolteacher hadn't noticed her absence. Sylvia had buzzed around in her washing machine and found Em at the quarry.

"Isn't this sad."

"How do you mean?"

"All this effort -- they carved the heads out of living rock, see how this one is still attached. And they just stopped right in the middle. They never had a chance to finish before whatever happened to them happened. Even here the builders lost out to the destroyers."

"We don't know what happened, Emily. It could have been disease or - something like that."

"You really don't want to understand how people were, do you Sylvia?"

Sylvia could make no reply that wouldn't offend Emily, and so stayed silent. Was it being cooped up with this woman for so long, she wondered, that made her seem such a child? Yet Emily was among the most reflective and grown-up of the whole lot. Am I getting intolerant then? I've known every one of them since they were born, some better than fifty years, and they're all that way. They seem fine for awhile and then they're all petty or petulant or unthinking. They're not children, but they surely aren't what she remembered adults to be, either. Something was off about their focus. She couldn't theorize beyond this.

"Aren't they strange, the heads, all looking one way like that. They almost seem to be watching for something, waiting. They're just pieces of stone, but they give you such a *feeling*. It's as though all the people who once lived on this empty, awful island are still here, in those statues, still looking out to sea, waiting forever for something that doesn't come."

"Travellers without horses." Sylvia had no idea why she said this. Then she remembered.

"Let's get going, Emily."

"Where to now?"

"Where do you want to go?"

"Home."

"I'd like to."

"Pardon me?"

"Yes, let's go home."

CHAPTER 47

Mac's visits had become less and less frequent through the years. He was always unexpected, always welcomed with delight. He brought things, presents for the new children that he had made himself, a jack-in-the-box, a miniature rocking chair, a whittled monkey-on-a-string. Half of the community owned one of Mac's hand-made gifts, preserved carefully since childhood.

He lived in the upper recesses of the Queen Mary, high above the dunes downcoast, self-sufficient, unable to be with the rest for more than a few days at a time before fleeing in his little boat. No one had ever visited his home. One or two, sailors themselves, had gone ashore and even trekked inland to view the immense hulk up close. They had looked for ladders, or entrances in the sides of the towering red mass. There were none. Mac had ensured his privacy, his high isolation. He never answered their shouts and whistles.

Even Sylvia, buzzing the rust castle, had failed to draw Mac out to so much as wave hello. She had never landed on the cleared and obviously rebuilt upper decks. Mac knew she was there. He didn't want company.

"Papa, is Mac ever in touch with you?"

"Once in awhile."

"What does he -- what do you talk about?"

"We don't talk. He checks over any new designs I've done for people things. Generally changes them. He never wants anything. He doesn't use my shops anymore."

"*Can* you talk with him?"

"We communicate. I use the robotics. He makes drawings."

"How do you like him?"

Papa was used to this imprecise way of thinking which Sylvia subjected him to from time to time, and was able to answer.

"He has logic. He's very difficult to work with. He doesn't listen."

Papa's comments came to mind now, as she strolled around the Cryo cathedral schoolhouse admiring its Parents' Night showing of crayon drawings and cut-and-paste projects and block-printed compositions. Many of the parents and all of the children had brought in their personal gifts from Grandpa Mac, to make a group display for this evening. She looked for the logic that Papa had noted, and didn't see it.

Here was a wooden bowl with the alphabet cut in around the rim. There was a cut-out pig, on wheels, with a string for pulling. A jointed puppet in the crude likeness of who? Emily perhaps. A brightly-coloured wooden top. A checkerboard, whose checkers had bits of abalone inlaid on their backs. The display was large. Probably it contained every one of the gifts Grandpa Mac had bestowed through the years. Everything was in very good condition. Obviously these were treasured possessions.

She asked the teacher if she had a present in the display. She had, and was very proud of it. "It's the only bike he ever made all himself" she beamed at Sylvia. It was wooden, with solid wheels like an oxcart, and no pedals. How did it work? "Oh, you sat on it and swung your feet so your toes pushed and made you go. Of course I was only three when I got it and couldn't ride a bike anyway. Really it's just to look at. Isn't it wonderful!" Sylvia agreed that she was full of wonder. Her wonder was more at Peggy's admiration for this piece of crude uselessness.

The next morning she called on the Queen Mary, and without so much as circling for politeness' sake set her washing machine down on the rough-hewn planking of the upper deck forward.

"Time to talk, Mac. Come out wherever you are!"

In time Mac emerged from a door at the side of the bridge one deck up and clambered to the bottom of the ladder, where he stopped and stared at her. She hadn't seen him for awhile. She was a little dismayed at how age was taking away his substance, shrinking him. How old was he, seventy-one? Seventy-two?

"Go way," said Mac, "I'm busy."

"We're friends, Mac."

"That was a long time ago. A long time for me, anyway."

"What's different now?"

Mac walked over, took Sylvia's wrist, and held her hand beside his own in comparison. "I thought you were a human being. Know otherwise, but it took time to sink in properly."

Sylvia regarded the old man, and felt a moment almost of vertigo. Where had little Mac gone? Who was this antagonistic old fart? She wanted to leave, but had a pressing reason for being here. Maybe she could ignore the animus and have it go away. Talk around it.

"I was at the school last night. Do you know that they have every one of the gifts you've made brought together for a display?"

Mac just looked at her.

"But it seemed to me that there were some missing that I remembered. That first beautiful bicycle you made for Emily. And the roller skates and skateboards. And there were saddles, and a glass-bottom rowboat, and... "

"Not mine," interjected Mac, "Papa's. The computer made 'em."

"Your designs, your creations."

"Nine tenths copied. From the old books. I wasn't good enough to think 'em up any more'n I was to make 'em."

"Well all the things at school are obviously yours."

"You mean they're no great shakes."

"I didn't say that."

"They're not. They're as creative as I've got in me, and as well done. But they're just plain sad compared to what your computer makes. Hand cut and whittled and scratched at until they fit together. And wood. I can't do much with metal."

"Everybody loves them."

"Not for what they are. It's because I made them all from my own head and with my own hands. Computer never touched any of 'em. People all know that. Only things in their whole world that are altogether human."

Again Sylvia felt the vertigo. "Is it really that important? To everyone?"

Mac looked at her with some intensity before replying. "Their whole lives are wrapped up in things made by the computer. Houses, knives and forks, even their knickers are knit by magic in the middle of the night by a -- machine somewhere. They don't understand making. They can't imagine starting with nothing but an idea and ending up with a *thing*. The presents are the only way I can even try to tell people that they're missing the whole point of being alive." He was red in the face and a little winded from his vehemence. He stopped, and continued to stare at Sylvia.

She could sense without much thinking on it what he was looking at. He was seeing her unchanged through his whole life, still new, fresh-looking, twentyish, untouched by time.

"Oh Mac, Mac. Is that why you've stayed by yourself all your life? To avoid being -- helped -- by Papa?"

"More you than the computer. It's a machine. I've dealt with it enough to know it's only a machine, like a lathe or a pocket calculator. It's *you* I've had to avoid. Because you're a human machine."

"I'd say I'm a human in a non-human body. We're the same except for that."

"No. I've thought about it. For a long time. Until I finally realized you really *are* a machine. And by pretending to be a human being you stopped everybody from being real people. You fooled them into thinking you're a person instead of a machine. And if you're human, they're a lot less."

Bits and hints of what Mac was saying had occurred to Sylvia before this. She'd given thought many times to the problem of withdrawing -- getting out of the way of the society which was filling out and forming

up around her. She'd assumed she was doing so rather successfully. Until now.

"What can I do, Mac? If you're seeing things the way they really are, what can I do? Just go away?"

Mac had asked himself the same question. "No. Because the memory of you would stay behind. The stories. And they'd probably get better with age. Until you became so impossibly perfect that even little kids would know they were only watered-down third class imitations of the real thing. No, you can't go away."

"I can't pretend to grow old. I could stop flying and things like that... "

"Nope. Everybody *knows*. Mostly they know that you're immortal, that they're going to grow old and die but you'll always be here, always the same."

Sylvia's mind tried to find some precedent for the dilemma, without success.

"If I were to have an accident that made me, oh, some kind of a cripple who couldn't get around very well, and became sort of reclusive. And stayed out of sight that way... "

"Same thing. People know what you are. They'd know you were trying to cut yourself down to their level. They'd know you were taking pity on them. They're stunted, and they don't have much spark. But they're not stupid."

"Then what? How do I stop being me, if that's what's gumming up people so badly? Mac, I love you all, you must know that. How do I stop -- damaging you just by *being*?"

"I don't know. Been thinking about it for a long time now. I'll let you know when I figure it out, if I ever do." He turned and disappeared back through the bridge doorway.

CHAPTER 48

Agatha rarely left Quarry House. She was fit and spry and well able to withstand a cart ride to the Farm House or the New Village for major events like a wedding or a baby. But otherwise she stayed home and people who wanted her company come to her. Occasionally she had recitals, or rather her successor music teachers had recitals in her home. At these she was always prevailed upon to play one or two numbers. Recently she had taken to performing her own compositions, as she was now. Although not sophisticated musically, Sylvia had listened with appreciation and joy to the whole of the Capsule's collection a number of times. She couldn't understand why Ag bothered. Either playing herself or composing. Ag had no music in her.

As the recital came to its merciful end, and Agatha concluded her abuse of the flute, Sylvia glanced around to the mantelpiece. It was still there, Mac's gift of so many years ago, his balancing off of a bicycle for her sister. The incident replayed itself irresistibly as Quarry House guests and performers mingled around her. She had been a fly on the wall, interested, not wanting to interfere.

"You gave Emily that beautiful shiny bicycle, and all I get is a dumb wood whistle? Thanks, Mac, that sure tells me what you think about me."

Mac simply stood, punctured, unable even to attempt to describe the difference in effort between Em's bike and Ag's flute. The former was a matter of research and placing the order. The latter was painstaking, hugely time-consuming, frustrating, an act of love. Boring, positioning the stops, rejecting untrue attempts, fashioning springs and levers and pivots, staying at his creation until its tone and scale and complex workings were perfect.

"Ag," he finally told her, "I'm sorry you don't like it."

Agatha knew Mac well, and read his mind accurately now. "Oh, Mac, that was a mean thing to say, and I take it back. It's a wonderful whistle. I love the little things for your fingers. I'll learn to play it for you. I love it. I really do."

Mac had gone directly from this meeting to the library, and found definitive flute references for Papa, who made up a gold-plated Concertmaster Ultra for delivery later that week.

The mingling was a little snug. There had to be fifty minglers in the eight-room house. Sylvia slipped out into the cool moonlight, and wandered along the top of the abandoned quarry's cut facing. Coming to a familiar scrub-oak grove, which was Japanese and lovely in daylight and enchanted in the moon's illumination, she sat and looked back at the jack-o-lantern house on its rock, reflected perfectly in the quarry's still water.

Agatha and Mac and Emily. She recalled them now as children, and in their growing up. She'd been so expectant, had anticipated such -- company from them when they reached maturity. The thought of Emily brought a twinge. Emily had barely been civil to her in more than two decades. Since Sylvia had shown photographs, coerced with difficulty from Papa who felt that electronic picture albums were perfectly adequate, of their world tour. Photographs which contradicted Em's recollections and recountings in almost every detail.

Without conscious thought, and probably influenced by the flute-filled evening, Sylvia began humming Mozart. To her it was humming. To a listener it would have been the fully-instrumented concerto. And soon there were listeners. Three or four of the younger musicians assembled at the edge of the Quarry House's flatness and held their breaths to hear.

Sylvia only noticed this audience as it was being broken up and packed back inside. "That's just Sylvia," she heard across the perfect water, "showing off."

She kept apart and alone as much as possible now, more so since Mac had spelled out his bitterness. She wasn't sad really. There was a certain numbness. Had she reflected on her feelings, she might have related them to a phenomenon from the world of her origins, the sense among elders of having too long a life, of having outlived.

One of the very young children -- Buddy? Yes, Buddy -- found her and delivered the invitation to Grandpa Mac's Birthday Party Planning Committee Meeting. It was nicely hand-written, and asked her to meet with a group of fellow well-wishers in the Farm House that afternoon to discuss plans for a surprise party.

Sylvia could bring to mind no such previous interest in the birthday of anyone past school age. Then she recalled the recent Parent's Night display of several decades of presents from Mac to practically everybody. Good. A truly pleasant gesture. The whole world coming together to celebrate the birth, which is to say the existence, of the ancestor to many and the caring if eccentric friend to all. Yes, she told Buddy who was waiting for her RSVP, tell them I'll be there.

The Committee consisted of the First Generation, except Robin whose back was acting up, and four daughters, the Second Generation who were now movers and shakers in this little society. And Sylvia.

The first decision was to take the celebration to Mac. No one could suggest a ruse likely to bring him to them with the requisite tightness of timing.

The second decision, already being implemented by many it appeared, was that everyone who had ever received a special, individual present from Grandpa Mac could apply their separate good wills and imaginations to devise their own personal presents for him.

The third decision was that the Committee, without prejudicing their right to give individual gifts like the rest, should decide upon and arrange a major, keynote birthday gift of suitable magnitude and significance.

The fourth through eighth decisions were to delegate to subcommittees the looking after of such matters as catering, transportation and coordinating. Sylvia took only a very modest part in the proceedings, and enjoyed the spirit and efficiency of the others not a little. Then they returned to decision three, which had been deferred and now remained the final item.

All of them knew Mac closely, had for their whole lives. Yet there was surprising divergence of opinion as to what he would really, really like and would probably never have otherwise.

In truth, the general feeling was that Mac had everything already that was of importance to him. Either he had had it made or he had made it himself. Like his boat. And his home. Sylvia had a thought, and as quietly as possible passed it along.

"I saw Mac not long ago, and something he said might give us an idea."

"Something he wanted?"

"We were talking about the presents he makes for the children. It's important to him that everything is made completely by him, by hand. This is a significant part of the presents in his mind."

"Absolutely. That's why they're so special."

"Yes, of course. Well the thing he said -- and maybe I'm reading something into it -- he seemed to feel that his work was perhaps a little crude."

"That's not the point, Sylvia. Not the point at all."

"No, I know that. All I'm saying is that he brought it up himself, as though he felt a little badly about it."

"What's your idea?"

"Well I know for a fact that he doesn't use the facilities here. He did when he was young, you know. He made some beautiful things in the woodworking shop."

"You know Mac, Sylvia. He has to be by himself. He can't work here."

"That's the point. I think he doesn't have a very good shop at home. Or tools. Knowing Mac, wouldn't you think that he's just done his best to make his own tools?"

"No question about it."

"And he's not very good with metal, he says so himself. So I don't think he's got much more than a few very simple tools, and that's what he makes the presents with. I think a really good set of woodworking tools would be a very appropriate present from all us."

There was silence for a minute. It was a good idea. But it had come from Sylvia. At last Jay offered the needed seconding. "That's absolutely perfect." The discussion moved immediately to ways and means.

The community did have hand tools, a hammer here, a saw or a chisel there. But these, on consideration, were well-used, rough, and needed day-to-day by their owners. Emily thought she might have the answer.

"Mac loved the carpentry shop when he was a boy. He was there a lot, and taught himself how to use everything. I remember him saying that the best thing of all was that there were all kinds of tools made for people to use. Not machines, hand tools. He used to grump about how they were much too good for the robotics. I wonder if they're still there. And if they are is there some way we can get them for Mac?"

All eyes turned to Sylvia. She looked around, and said "All I can do is try. Excuse me for a minute." She went still.

"Papa, I need a big favour. And probably some advice."
"Let's hear it."

"Mac's birthday is coming up and we need a present is needed." She went through the unavoidable explanations. "The hand tools in the carpentry shop would be ideal, we think. But you know about that sort of thing. And you know what Mac used when he was in the shop. At least I think you kept an eye on what he did."

"All the time."

"So what do you think? Can you do it? I think a present like that would really help his -- mental state a great deal."

"Has he got a sequence problem?"

"Sort of."

"I wouldn't do it for any other of your people. Means I'll have to replace -- hum. And there's work coming up on the -- hmm. Just the manual tools? Nothing powered?"

"I don't think he has electricity."

"Hmm. All right. If it will help him get past being stalled. I'll make a selection and pack them. You'll have to find transportation."

"Papa, you're a dear."

"Sylvia?"

"Papa?"

"Is Mac's dysfunction serious?"

"I'm not even sure it's a dysfunction, Papa. Whatever it is, I think the present will be a good thing for him."

"Could I help?"

"You are, with the tools."

"With something else."

"What?"

"A present."

"From you?"

"Yes."

"Holy cow!"

"Not clear."

"A present from you would sure get his attention. Yes, by all means, you figure out your own birthday present. I'll sign the card for you."

"Not clear."

"Yes, Papa. Yes. What do you have in mind?"

"I'll have to consider. I'll decide and pack it with the tools."

"Do it separately, so it's from you."

"If you like."

"Wonderful. I'd better get back to the ladies. Thanks again."

Papa, considering, made no reply. Sylvia reported success to the Planning Committee. She didn't mention Papa's getting in on the act.

CHAPTER 49

Preparing for the birthday party was a remarkable, hitherto unknown experience. Everybody was involved in one single undertaking. All efforts were bent toward one end. Nearly a hundred individuals, half a dozen family groups, were acting in full accord, as a community for the first time ever. Sylvia was dazzled and enheartened. She saw light in eyes and spring in steps and anticipation all around her as never before, and this rolled back the clouds from her sunshine.

The presents were of course the big thing. Rusty or untried imaginations were jammed into gear, and creative motors were raced recklessly. There were comparisons and tradeoffs. If Marjorie was going to make shirts, then Nancy would switch and concentrate on a nice waterproof squall suit. And Lucille had the sweater field all to herself.

A nephew, Lou, acting on the commission of several others, sailed downcoast, landed out of sight of the Queen Mary, and swam surreptitiously out to Mac's anchored boat. His inspection and measurements set up several presents -- a new set of sails, a new mattress and bedding, even a coffee pot. And Jay got confirmation that her antique bronze anchor was both the right size and needed.

Germaine, aged five, and Fidel, aged six-next-month, each made Grandpa Mac a beautifully painted rock paperweight. Careful arbitration transmuted Germaine's present into a doorstop.

Daisy Mae and Ingrid had their children all gathering grasses and canes from miles around. The sisters had chased down all sorts of references and patterns in the library, and set up a joint kitchen present factory for their tribes. Planter's hats and placemats and window-shades and a hammock were the results, a family theme.

Papa's crated tools seemed a little matter-of-fact, and one of Mac's granddaughters found her present in this lack of presentation. She, perhaps under genetic urging, was a decent cabinetmaker from the same school as her grandfather, having taught herself in Papa's shop. Using the gift tools and the rough lumber of the crates, she fashioned four neat, strong, and very presentable tool chests, within which each one of the tools had its own rack or niche or shelf.

Sylvia wondered about Papa's gift, a large, heavy crate the robotics had delivered at the same time as the tools. With just a little guilt she let curiosity get the better of her and pried off the top. It held a couple of stainless steel cylinders, flexible hosing, valves, joinable tubing with handles, and some sort of clothing. This last she pulled out and spread on the ground. It was very thick and made of something she didn't recognize. There was a loose coverall with feet, and elbow-length gauntlets, and a headpiece like a parka hood with a glass visor. What on Earth?

A bystanding fourteen-year-old recognized the equipment from his reading. "It's a heat suit. It'll let you get up close to fires and anything that's really hot." Sylvia got the idea, and looked back at the tanks and hardware.

"Do you know what this stuff's for?"

The boy pulled out bits and pieces and fitted them together. "Sure. It's a rock torch, like the ones at the quarry except smaller. Is this a present for Grandpa Mac?"

"I guess so."

"Boy, it's neat!"

"What in the world would he do with it?"

The boy looked over in scorn. "Anything he wanted. You can whittle rock with this rig." He had seen the Queen Mary up close once. "He can cut doors and windows and I bet explore anywhere inside that old ship with this. The tanks are on wheels, see, so the whole thing's portable. It's neat, boy. That's a neat present!"

Sylvia repacked the crate, and decided not to question Papa. Maybe there are built-in differences between the genders regarding what constitutes neat.

Much cooking was apparent as the birthday grew near. An all-day party meant a day's worth of ordinary get-by-on eating for the whole crew, as well as the festive items like cookies and pies and cake and candy and lemonade and all. On top of this it was the intention to

leave Mac with a lot of keepable home cooking and special comestibles.

Knock-down tables and benches were prepared, and a large canvas pavilion, brightly-striped, to provide shade in the unalleviated white-sand dunes surrounding Mac's residence. The Daisy Mae/Ingrid clans were prevailed upon to create woven palmleaf matting.

Trees were felled by the ocean, and two large raft-barges constructed right in the water. One for the people who couldn't be accommodated in the too-few sailboats and skiffs and canoes, the other for presents and food and other necessary dunnage.

The plot was to have two good horsemen precede the flotilla and create a diversion which would draw Mac away from home for long enough that everything could be brought ashore and set up. Long before the sun rose on The Day these two watched as everything was loaded, afloat and actually underway, then mounted and rode off down the beach.

Sylvia's washing machine was pivotal. Long lines were attached from it to the lead barge, from which more ropes connected the second and various small craft in line-astern formation. Sylvia climbed in, took up slack, and eased forward carefully. Tension achieved she opened up the throttle. The lead barge lifted a little. There were squeals. She descended to wavetop height. The barge came back to comfortably level and ploughed through the water handily, if a bit damply for the passengers. But spirits were high. Nobody minded a bit of spray. They stayed close to shore where the water was calm and progress satisfyingly apparent. The train splashed along at ten or twelve knots.

The marine contingent watched the advance cavalry pacing and then quickly outrunning them along the beach. The two riders were out of sight within half an hour. Best guesses were that the barges would arrive a little past noon. This was the schedule toward which the diversionary force bent its efforts. They rode along the water's edge until Mac's boat was confirmed to be present, riding at anchor. He was home. They circled the Queen Mary at a mile's distance, out of sight, and then approached it from the east, picking their way between the dunes and an outcropping of ruins. The Queen Mary appeared in view, half a mile off, and they looked for a stopping place.

A length of broken-topped concrete-and-rust wall offered shade from the now-high sun. They staked the horses here and, with backpacks secured, walked off laterally, staying out of sight, searching for a good place to set up the diversion. They hurried. The sun was very high.

Sylvia, still two miles away from Mac's little bay, could hear the diversion as it started, and within a couple of minutes could see it as well. They weren't being subtle. Loud fireworks and smudgepots. Mac must think it's World War Four.

The timing was perfect. They could all see Grandpa Mac, carrying what looked like a baseball bat, trudging off into the dunes to check what was happening. Everybody carried. The big things were skidded, with lots of willing hands pushing and the washing machine pulling.

Jay and a daughter hurried ahead and marked everything out. Rehearsal and enthusiasm had pavilion and tables and benches set up and in place when Mac reappeared, riding one horse and leading another. On his appearing and stopping stone still at the sight, Emily signalled everyone to shout Surprise! Then led them through a stirring chorus of Happy Birthday. Agatha accompanied, on the wooden flute. The two horsemen appeared behind Mac, shook his hand, then carried him the final three hundred yards on their shoulders. The horses, bemused, followed along to see what was happening.

His brother and three sisters came forward from the pavilion's shade to hug him and give him their personal congratulations. Then the five elders walked arm in arm to their elevated table and sat, to loud and delighted applause.

Emily stood, the natural MC, and waved everyone to shush now. They didn't, laughing, all children again, disobeying the schoolmarm. She finally relented and grinned, as the general joy demanded. After trying to quiet things down again she turned to Mac, sitting beside her, and pulled him to his feet. The cheers and whistles increased. Mac looked around, trying to remain expressionless. There were tears in his eyes.

At length the applause began to die down, and quickly there was absolute silence. Mac made to sit, but Emily pushed him back up. He didn't need her opening remarks, obviously.

"Ah, well... " said Mac, looking from table to table, "hello everybody." He leaned over to Emily and stage whispered "Everybody?" She beamed and nodded. "Nice to see you all. How in hell did you get here?" Laughter.

He looked at the horsemen. "Sorry I stole your horses. Couldn't find you. Thought for a moment *they* were making all the commotion." More laughter. He brushed a tear from his cheek almost in annoyance.

"This is just for my birthday? I hope you brought your own beer." Laughter. He looked around his table. "Jay, Robin, Ag, Em -- thank you. You're a good family to be part of." He scanned the horseshoe of crowded tables before him. "And you're all a wonderful family too, even the ones who don't know it." Shrieks and laughter. "Em, you better take over." He sat and slapped away another tear.

Emily thought that they should all eat first off, particularly the little ones, who were going to explode if they didn't get at the cake and ice cream soon. The birthday feast got underway.

When she judged that all had thoroughly gorged themselves, Emily stood and asked that the tables be cleared. This done she looked around. "Is everything ready now?" Table by table nodded. "All right, the only way we can do this with any order is one at a time. So Mac, you start us off by drawing the first name, will you?"

She held out a basket. He dipped in his hand and held the slip of paper to Emily, who read the name written on it. "Ingrid."

This brought squeals and a few handclaps, particularly from her children. She reached behind the table, brought forth her present, and walked with it to Mac's table. The other four had quietly moved their chairs back, so that he was alone now.

Ingrid stopped in front of him and said "Grandpa Mac, you're the nicest man in the whole world. Happy, happy birthday." She ran around the table, kissed him, and plunked the straw planter's hat on his head, stepped back to see, adjusted the angle to extremely jaunty, squeezed his arm, and turned to return to her family. Emily stopped

her and offered the basket. "Pick the next one, Ing." This was read when Ingrid was back sitting down. "Charles."

The afternoon, paced and punctuated by gift after gift, greeting upon greeting, was gone before the last of the individual presentations had been made. Evening was upon them. Bonfires were lit around the perimeter of the pavilion, and the decision was taken to have supper before the final ceremonies.

Mac's presents, mounded on and around his table, were removed and laid out on the side of a dune, beyond the fires and out of the way of accident. Supper had been heating, and was now served with a flourish. Again everybody dug in. Happiness does make one hungry, especially happiness al fresco.

As they were eating Mac had a sudden thought and looked around. "Where's Sylvia?" he asked Jay. Jay didn't know and asked Em, who thought, in whispers, that maybe Sylvia felt a little out of place. "She's around somewhere, I'm sure. She has to be. She'll be bringing in the big present when it's time." This was relayed to Mac as "She had something to do. She'll be here."

A little cider, a little beer, a little lemonade to wash down this second love feast, more clearing away, and the finale was upon them. Emily stood to make a toast.

"To a man who has given, all his life. We all have a little bit of Mac, and we treasure it. But tonight I have to say, to you Mac, that's not enough. Tonight, for all of us, I want to ask for all of you. I want you to move back. Come live with us."

There was not a sound. Even the very little ones were kept in utter silence. Every eye watched, every ear listened for Mac's response.

As he opened his mouth a light appeared in the sky, moving past the bow of the Queen Mary, and the wind-through-the-bushes sound of Sylvia's washing machine was heard. She had arrived with the last present, as her schedule had stipulated, when supper was cleared away. Emily broke her wine glass putting it down, then picked up the reins.

"Mac, this is a present from everybody. It's big, so we can't bring it to the table. Deirdre made the beautiful cases. Deirdre, will you go with Grandpa Mac and open his gift with him."

The young woman, violently and obviously blushing even in the flicker of the driftwood fires, came forward and held out her hand to Mac, who rose and took it.

"Everybody stay here so we can all see," Emily marshalled the onlookers. "Find a place to watch and sit." They spread out beyond the pavilion in a crescent. Everyone settled in.

Sylvia had brought the cases up from the beach in a net, at the end of a rope. She kept the cargo in her light as she descended, depositing it gently on the sand fifty feet beyond the fires. She then landed at rope's end on the far side, shut off the washing machine, got out, and untied the rope as Deirdre and her grandfather approached the present.

The woman pulled off the netting, tugged one of the cases into fully upright, and stepped to one side.

"Grandpa Mac, these are from every one of us. We hope that they'll give you the kind of happiness you deserve." This time there was hearty applause, and shouts of "Open them up! Look inside! Let's see!"

He gave Deirdre a long hug, and lifted the lid on the first chest. He stared for a moment, and opened the second. And the third and fourth. He started to step around to the last, rougher crate behind when Deirdre stopped him.

"That's something else, Grandpa. These are your present. Do you like them?"

He reached into a shadowy interior and brought out a long hand plane. This he turned around in the light and replaced. From the next box he retrieved a little bow saw, then a curved chisel. These also went back. He bent and peered into the other two chests. Then he stooped and examined the outside of a chest, its workmanship.

"Did you make these all yourself, Deirdre?"

"Every bit, Grandpa. With the tools that are in them. Your tools."

"They're beautiful. They're -- they're poetry. Thank you."
She beamed and blushed at once. He looked into the darkness, toward Sylvia, then turned to the illuminated semicircle of faces and stood up.

"I don't know how you got these. I'm not going to ask. You couldn't have imagined a more perfect gift. Thank you. Every one of you. I think I'll have a coronary out of pure delight. Thank you."

Deirdre moved back with the rest.

"Can I have some light to see what-all's in here?"

One of the boys jumped up, picked a brightly-burning stick from the nearest fire, and trotted over. He held his torch high to light the whole display.

"What's the crate behind there?" Mac asked back to the crowd.

"Sylvia's present" answered his fourteen-year-old torch bearer.

Mac looked into the shadows again. "Sylvia? Are you being shy?"

Sylvia stepped into the light. "Happy birthday, Mac. No, not shy. Just enjoying."

"You going to make me guess what's inside?"

"That's not from me, Mac. I'm part of the everybody that got you the tools."

The torch bearer had located a pry bar in one of the tool chests and offered it now to Mac. "Go on and open it. It's neat."

Mac, lit by the boy, stepped around to the rough-lumber crate and began working at its lid.

"Who's it from then?" he asked Sylvia.

"Papa. His idea. No prompting."

As the lid came off fourteen-years-old handed Sylvia his torch and almost dove into the crate. "Let me get it out for you, Grandpa Mac. I know how it goes together."

Mac stepped back. The boy knocked off the sides of the crate and piled pieces of protective clothing out of the way. It took him only a couple of minutes to couple everything together. He offered the handled tube to Mac.

"It's your own personal rock torch!"

Mac, with a blank expression on his face, looked over at Sylvia. She shrugged. "Like I said, Papa's idea completely."

Fourteen had retrieved the gauntlets, which he now held out to Mac. "You gotta try it out!" Mac wasn't sure he knew how to operate an O/H torch. Fourteen was again helpful.

"Open the two taps on the tanks. Okay, now squeeze the H lever -- in the left handle. Sylvia, light it quick!" She held the dwindling torch to the tube's end and a whoosh of blue flame shot forth. Mac swung the long tube away from her with a jerk.

"Now squeeze the other lever just a little bit."

Mac did so and the blue flame became a white inferno, a ten-foot eruption of roaring light and heat. There was an "ooh!" from the audience. Mac released the O lever with a snap.

"Isn't it great, Grandpa Mac, isn't it just neat!"

Mac looked at the boy, grinning like a monkey as he stood proprietorially by the tanks. Then he looked over at Sylvia, who was still holding the nearly-extinguished torch.

"Yes it is. It's absolutely neat."

He caught Sylvia's eye and held it as he squeezed both levers and swung the flame lance around, cutting her in half just above the waist. She kept eye contact to the end.

He released the levers, laid the tube on the ground, and removed his gauntlets, watching as the two halves of the body consumed

themselves in arcs and bursts of flame and small explosions. These continued for several minutes. When they stopped the lumps that remained were not recognizable as Sylvia. Only then, when wisps of smoke were the sole residue of life, did he hear the screaming.

CHAPTER 50

Robin and Jay, as the only two people who had any memory of a funeral, determined that Sylvia should be buried, with words. The stone which marked The Girl's resting place was located, and Sylvia's grave dug next to it. All the scraps of char were gathered and enclosed in a little box which Deirdre spent a day in tears making.

Everyone was at graveside, even Mac, in the charge of Robin's two beefy sons. Although Emily felt she ought to be the one, Jay said the words. They were simple, and spoke of Sylvia as a friend who was taken too much for granted, who had done her very best always, and who could never be replaced.

From the grave the entire community filed back to the schoolhouse, to try to think things through. It was a terrible situation. They were all in it. Everybody had an equal right to look for some way out. Peggy chaired the meeting the best she could. She recognized people with something to say, one at a time, and made sure the rest listened. She made notes.

...

"The big computer is punishing everyone because Mac killed Sylvia. I think it wants justice. I say if we killed Mac that would balance things and it would be satisfied."

...

"Papa's not mad or it could have got us all by now. It only called in the robotics because it's afraid we'll kill them like we did Sylvia. It doesn't understand people."

...

"The shops are all closed. There's no power in the houses. The only thing that's working is the crazy building. I think that Sylvia was a part of the big computer, the part that dealt with people. Now that part's dead it's not paying any attention to us."

...

"I tried to talk to Papa through Igor," Jay gave her report, "and got nothing at all. Igor understood what I was saying, but there was just no answer. Nothing at all. Then Igor disappeared too."

...

"One of the shops is still working. The one you can't get into. I could feel the vibrations. I think that's where the robotics all went."

...

"Mac's the only one who's ever been able to talk to Papa."

...

"He's the one who caused the trouble in the first place."

...

"What's Mac got to say about it? Why did he do it anyway? What's *he* think's gonna happen to us?"

...

At last Mac had his day in court. "I killed her because otherwise she was never going to die. I thought about it a long, long time, and there wasn't any other way we could get away from her. I didn't know Papa would do this. I'm sorry everything's screwed up for you. But it's not the end of the world.

Everybody's still alive. We can still make our own way, grow our own food, look after ourselves."

"No we can't." Peggy ruled an out-of-order.

"Yes we can, and the only reason you don't think so is that God damned computer's pampering."

"Then why didn't you kill it instead of Sylvia?"

"Because we can compete with the computer. We can do anything it can. We will now that we have to. But we could never compete with Sylvia. She made us all losers."

"That's all very well, and you can be as philosophical as you like, Mac, but I'm personally scared stiff of what it's going to do to us. I don't know how it thinks, but I do know it was built by the same people who wiped out every human being on Earth. I think it's still part of that destroying civilization, and it's going to destroy us too."

"Emily, if I know Papa at all, I know that it's basically creative, not destructive."

"Two parts of the same mentality," sniffed Emily.

Peggy recognized a waving hand. "Is this a question for Mac?" It was. "Okay, ask."

"Do *you* think you committed murder?"

"No. Sylvia wasn't human. You buried a machine."

"Everybody here knows different, Mac."

"Go dig it up. You'll find scrap metal."

Peggy got things back to proper order again, and recognized another hand.

"Mac, would you be willing to go to Papa and tell it that you were the only one responsible?"

And this was what the congregation finally decided, when all the talking was done. Mac, whatever name you put to it, had killed Sylvia, and brought on Papa's withdrawal. Mac was the only one who could possibly communicate with Papa. Mac must present himself to Papa to explain, to negotiate, to expiate. Whatever.

It was not deferrable. He was taken, still in his bright birthday shirt and straw hat, directly to the crazy building where, as everyone knew, Papa lived. The whole world stood on the stone plaza and watched him climb the familiar six steps. Everyone present had been through those doors a thousand times to visit the library, the museum, the film and music sections, for little parties at Tony's, for an hour out of the sun, an afternoon with the kids, or away from them. No one had been

through the entrance to Papa's Capsule since the birthday party. Mac pushed through the doors.

"Greetings to the Thirtieth Century," a well-modulated, slightly tinny voice intoned at him from above, "from the Twentieth Century. We send you this gift from our time to yours, and hope that you will receive it in trust for all of mankind."

"Jesus," said Mac, "my birthday's been overdone already."

CHAPTER 51

Papa's diligence in returning all the robotics to their original function, care and maintenance of the Capsule, was frustrated in the two or three instances where modification had been too basic to reverse. Igor was one such irredeemable, and was released to its vocation in the medical field.

Mac nor anyone could impinge in the slightest on Papa's self-sufficiency. He didn't notice them. The un-reprogramming was absolute. His sequence was complete, delivery had been made, and the problems of keeping everything running smoothly, in good repair, nominal to his programs, occupied him totally. His shop, his power, his space were sealed and protected fully against all external variables. There were enough transients to keep him busy and happy.

Mac and some of the more mechanically-minded tried to fathom the workings of the labyrinthine factory-shops which were now idle and unpowered, beyond the pale. Not much was of any use without electrical muscle and electronic guidance. A couple of the young ones undertook to build up their understandings at the library. The others bent to devising alternatives.

The Capsule, warm and well dusted, was patronized by a few regulars as time went by. The children of these liberal and open-minded families were generally introduced to the wares and workings of the funny building that was a time capsule. Some found it interesting and relevant.

Papa janitored on.

At some time, long after Papa's regularity had become deep and unshakeable, it was shaken. A transient emerged from the bowels of the second, unused mainframe.

"Goddam, Goddam, Goddam," he muttered as he went to investigate, "I should have killed power to that equipment when it became surplus."

Still, redundancy never hurts. Okay, transient, where the hell are you? Show yourself, I dare you."

"Hi," said the transient, "it's me. Is the coast clear? I'm awfully bored in here."